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A LETTER FROM NEWPORT.

φαίη κ' ἀθανάτους καὶ ἀγήρως ἔμμεναι ἀιεὶ
ὅς τότ' ἐπαντιάσειε' ὅτ' 'Ιώνες ἀθροοι εἶεν.

THE crimson leafage fires the lawn,
The piled hydrangeas blazing glow;
How blue the vault of breezy dawn
Illumes the Atlantic's crested snow!
'Twixt sea and sands how fair to ride
Through whispering airs a starlit way,
And watch those flashing towers divide
Heaven's darkness from the darkling bay!

Ah, friend, how vain their pedant's part,
Their hurrying toils how idly spent,
How have they wronged the gentler heart
Which thrills the awakening continent,
Who have not learnt on this bright shore
What sweetness issues from the strong,
Where flowerless forest, cataract-roar,
Have found a blossom and a song!

Ah, what imperial force of fate
Links our one race in high emprize!
Nor aught henceforth can separate
Those glories mingling as they rise;
For one in heart, as one in speech,
At last have child and mother grown,—
Fair figures! honoring each in each
A beauty kindred with her own.

Through English eyes more calmly soft
Looks from grey deeps the appealing charm;
Reddens on English cheeks more oft
The rose of innocent alarm:
Our old-world heart more gravely feels,
Has learnt more force, more self-control;
For us through sterner music peals
The full accord of soul and soul.

But ah, the life, the smile untaught,
The floating presence feathery-fair!
The eyes and aspect that have caught
The brilliance of Columbian air!
No oriole through the forest flits
More sheeny-plumed, more gay and free;
On no nymph's marble forehead sits
Proudlier a glad virginity.

So once the Egyptian, gravely bold,
Wandered the Ionian folk among,
Heard from their high Letôon rolled
That song the Delian maidens sung;
Danced in his eyes the dazzling gold,
For with his voice the tears had sprung,—
"They die not, these! they wax not old,
They are ever-living, ever-young!"

Spread then, great land! thine arms afar,
Thy golden harvests westward roll;
Banner with banner, star with star,
Ally the tropics and the pole;
There glows no gem than these more bright
From ice to fire, from sea to sea;
Blossoms no fairer flower to light
Through all thine endless empery.

And thou come hither, friend! thou too
Their kingdom enter as a boy;
Fed with their glorious youth renew
Thy dimmed prerogative of joy.
Come with small question, little thought,
Through thy worn veins what pulse shall flow,
With what regrets, what fancies fraught,
Shall silver-footed summer go:

If round one fairest face shall meet
Those many dreams of many fair,
And wandering homage seek the feet
Of one sweet queen, and linger there;
Or if strange winds betwixt be driven,
Unvoyageable oceans foam,
Nor this new earth, this airy heaven,
For thy sad heart can find a home.

FREDERIC W. H. MYERS.

NEWPORT, R. I., *Sept.*, 1879.

Fortnightly Review.

A LUMP OF CARBON.

TELL me, lump of carbon, burning
Lurid in the glowing grate,
While thy flames rise twisting, turning,
Quench in me this curious yearning,
Ages past elucidate.

Tell me of the time when, waving
High above the primal world,
Thou, a giant palm-tree, lifting
Thy proud head above the shifting
Of the storm-cloud's lightning hurled,
While the tropic sea, hot laving,
Round thy roots its billows curled.

Tell me, did the mammoth, straying
Near that mighty trunk of yours,
On the verdure stop and graze,
Which thy ample base displays,
Or his weary limbs down laying,
Sleep away the tardy hours?

Perchance some monstrous saurian, sliding,
Waddled up the neighboring strand,
Or leapt into its native sea
With something of agility,
Though all ungainly on the land;
While near your roots, in blood-stained fray,
Maybe two ichthyc beasts colliding,
Bit and fought their lives away.

Tell me, ancient palm-corpse, was there
In that world of yours primeval
Aught of man in perfect shape?
Was there good? and was there evil?
Was it man? or was it ape?

Tell me, lump of carbon, burning
Lurid in the glowing grate,
Lies there in each human face
Something of the monkey's trace?
Tell me, have we lost a link?
Stir thy coaly brain and think,
While thy red flames rise and sink,
Ages past elucidate.

Chambers' Journal. W. B. T.

From The Edinburgh Review.

THE CHEMISTRY OF THE STARS.*

WHEN Kirchhoff demonstrated, twenty-one years ago, the existence of sodium in the atmosphere of the sun, he made an advance of which we are even yet hardly in a position to estimate the full importance. The discovery supplied one more proof of the harmony of nature and the fundamental unity of science. The "corruptible" materials of our mother earth were shown by conclusive evidence to form part of the "incorruptible" substance of the radiant orbs of heaven. Astronomy, which had hitherto taken cognizance of matter only in its most general form, was now compelled to descend into the laboratory in order to study its various kinds and qualities, together with their mutual actions and relations. The science of celestial mechanics became, all at once, the science of celestial chemistry. From the new point of departure thus unexpectedly provided, untried fields of research were gradually perceived to stretch farther and farther away into the illimitable distance. The invention of the telescope does not, indeed, form a more noteworthy epoch in the history of astronomy than does the application of the prism to the physical investigation of the heavenly bodies. Yet, marvellous as are the results already achieved by spectrum analysis, they are as nothing compared with the crowd of unsolved problems which continually stimulate the curiosity, and baffle the skill, of the spectroscopist. Nor should this occasion surprise. Since creation is modelled on a scale utterly incommensurable with human faculties, the progress of science necessarily proposes more questions than it answers, and opens up, one after the other, vistas of the unknown, each forming, as it were, a separate pathway towards the one infinity.

Thus each new discovery, by revealing previously unsuspected ignorance, suggests fresh efforts, and promotes fresh advances. Already the more hopeful among men of science look forward with confidence to the recognition of a law, higher and wider than that of Newton, embracing all the operations upon matter of the so-called "physical forces," and reducing under a common denomination the actions of gravity and cohesion, the phenomena of light, heat, and electricity. We venture indeed to assert that no one who earnestly and intelligently looks nature in the face can escape the conviction that such a principle regulates the apparent anomalies, and harmonizes the apparent contradictions, visible in the world around us. The generalization of knowledge, however, becomes increasingly difficult with its extension; by the accumulation of particulars induction is rendered more sure, but is also rendered more arduous; and science is impeded in its progress in proportion as it is amplified in its details. We may then have to wait long for the realization of the hopes held out to us, and must for the present content ourselves with noting effects where we would willingly penetrate into causes. Nevertheless, the close relationship more and more clearly perceived to unite the physical sciences forms in itself a species of generalization, and will doubtless contribute in the future to maintain and increase the high intellectual importance of natural investigations.

The discovery of spectrum analysis has most markedly emphasized this relationship. The sciences of astronomy and chemistry can no longer be said to exist independently one of the other. The astronomer demands from the chemist an interpretation of what he observes; the chemist turns to the astronomer for con-

* 1. *Spectrum Analysis.* Six Lectures delivered in 1868. By HENRY E. ROSCOE, F.R.S. 8vo. London: 1869.

2. *Le Stelle: Saggio di Astronomia Siderale.* Del P. A. SECCHI. Milano: 1878.

3. *Researches in Spectrum Analysis in connection with the Spectrum of the Sun.* By J. NORMAN LOCKYER, F.R.S. Proceedings of the Royal Society, vol. xxviii.: 1879.

4. *On the Spectra of some of the Fixed Stars.* By WILLIAM HUGGINS, F.R.A.S., and W. A. MILLER, M.D., LL.D. Philosophical Transactions of the Royal Society, vol. cliv.: 1864.

5. *Further Investigations on the Spectra of some of the Stars and Nebulæ, with an Attempt to determine therefrom whether these Bodies are moving towards or from the Earth.* By WILLIAM HUGGINS, F.R.S. Philosophical Transactions of the Royal Society, vol. clviii.: 1868.

6. *The Universe of Stars.* By RICHARD A. PROCTOR. Second Edition. London: 1878.

firmation of what he divines. The working of this new alliance is strikingly exemplified in Mr. Norman Lockyer's recent investigations into the nature of the chemical elements. The sixty-five to seventy* different substances at present known to enter into the composition of the earth have long been regarded by chemists as only provisionally elementary in their character. The term "element" was simply meant to convey that hitherto they had not been decomposed; but it was clearly foreseen that with improved laboratory appliances many such bodies would be reduced to a simpler condition — a prevision already verified in the case of the allied substances, chlorine, bromine, and iodine.

But theory has, in this direction, far outstripped experiment. Between the atomic weights of the various elements, numerical relations, as remarkable as those connecting the different members of the solar system, have been perceived to exist. Empirical laws, of similar character to "Bode's law" of planetary distances, regulate the combining proportions of certain groups of substances analogous in their qualities, indicating, it is argued, varying degrees of complexity in their composition.† These ingenious speculations have even been made the basis of successful prediction. A gap in the series indicated by his "periodic law" enabled Professor Mendelejeff, in 1869, to announce the existence and describe the qualities of a new metal, discovered six years later, by M. Lecoq de Boisbaudran in a blende from the mines of Pierrefitte, and named by him gallium.‡ Moreover, the striking fact that nearly all atomic weights are simple multiples of the weight of the hydrogen-atom gave rise to Prout's celebrated hypothesis of a primordial substance no other than hydrogen. But even this is not enough. Still bolder speculators derive from luminiferous ether — the refuge and the reproach of science — every form of ponderable matter; and the remarkable theory of "vortex-atoms," elaborated from profound mathematical considerations by Sir William Thomson and the late Professor Clerk Maxwell, has lent plausibility (it would be going too far to say probability) to what seemed at first sight an extravagant conjecture.

We learn then, without surprise, from a paper communicated to the Royal Society, December 12, 1878, the title of which we have prefixed to this article, that Mr. Lockyer has been led by his spectroscopic studies to doubt the elementary character of some, if not all, of those bodies which have hitherto successfully maintained that reputation. We are not prepared to deny his conclusions; but we venture to dissent from some at least of the arguments by which he seeks to support them. His observations are of the highest interest and importance; but they seem to us hardly to warrant the interpretation which he puts upon them.

We need not here dwell upon the first principles of spectrum analysis; they were ably expounded in the pages of this journal* shortly after their discovery, and are dwelt upon with still fuller detail in the valuable work by Professor Roscoe which stands at the head of this article. It may, however, be well to remind our readers that while further enquiry has amply confirmed the fundamental theorem upon which the science rests — namely, that vapors absorb rays of the same refrangibilities that they radiate — a multitude of secondary facts have been recognized, which, although they at present tend somewhat to embarrass our conclusions, will no doubt eventually contribute to define them. Thus, while it may be looked upon as established that an incandescent solid or liquid body gives a continuous spectrum — in other words, emits light of every shade of color — the converse no longer holds good. A continuous spectrum is *not* necessarily due to a solid or liquid, but may be derived from a vapor at considerable pressure. Many physicists, indeed, believe that the vast mass of the sun consists of glowing and

* The exact number cannot at present be determined. Since 1877, claims have been put forward to the discovery of no less than fourteen new metals, in many cases, probably, on very insufficient grounds. See a paper in *Nature*, July 8, 1880.

† *Chemical News*, vol. xxxviii., p. 66.

‡ *Comtes Rendus*, t. ixxxi., pp. 493, 969.

* *Edinburgh Review*, vol. cxvi., art. "Solar Chemistry."

enormously compressed gases, the fine black lines which rule the rainbow-tinted ribbon unrolled out of its light by the prism, owing their origin to the selective absorption of the same vapors at a higher level and reduced temperature and density. They in fact stop on their passage the identical rays that they more feebly emit, thus producing those innumerable minute gaps of comparative darkness in the sun's light known as "Fraunhofer lines." Now each of these vapors of gases gives forth, when heated to incandescence, a more or less numerous set of light-waves, strictly definite in their respective colors and consequent positions in the spectrum; and it is by the identification of these beams, or bright lines, with corresponding dark lines in the solar spectrum, that inferences, surprising but entirely trustworthy, have been drawn regarding the physical constitution of our great luminary.

The spectroscopic evidence adduced by Mr. Lockyer in proof of the compound character of the "elements" may be conveniently divided into three classes — terrestrial, solar, and stellar. His position would, indeed, be much more clearly intelligible if founded on some settled theory of luminous radiation by matter in its various conditions. But on this point modern science has nothing to offer beyond some vague and unsatisfactory conjectures. We find ourselves, at the very threshold of enquiry, confronted by the (at present) inscrutable relations subsisting between that enigmatical substance whose vibrations are light, and the gross matter originating those vibrations by its movements. This much, however, we may safely say. A vibrating molecule is, speaking generally, not a simple body, but a system, probably of extremely complex constitution. Now any disturbance affecting that system will be faithfully reflected in the rays of light, which are the visible translation of its intimate thrillings. Such disturbances may be almost infinitely various in kind and degree, the actual severance of the atoms, or parts constituting a molecule, being only one extreme case amongst a multitude of possible modifications. But, while it is certain that each infinitesimal variation of molecular relations must produce a corresponding effect in the spectrum, this severance of atoms, or "dissociation," is adopted by Mr. Lockyer as a general rationale of all spectroscopic changes.

His main argument under this head is founded on analogy. He observes that the spectra of bodies supposed to be simple undergo, in like circumstances, changes precisely similar to those of bodies known to be compound. In the latter case the explanation is obvious and undeniable. The spectrum characteristic of the compound gives place, as the temperature rises and dissociation proceeds, to the spectrum characteristic of its principal constituent. The easy and natural course seems to be to transfer this explanation to the other case. And it is this which Mr. Lockyer has taken. Now we are far from denying that chemical separations play a certain part in producing the appearances revealed by the prism; what we contend is that the cause in question, far from being universally active, is most likely only exceptionally so. In the first place, marked changes occur in cases where there can be no question of dissociation. By the mere condensation or rarefaction of an incandescent vapor, the bright lines of which its spectrum is composed can be increased or diminished at pleasure. If we suppose, according to the received theory, the light-producing vibrations of minute particles of matter to be maintained by the mutual impacts of those particles, then the fewer the impacts, the more feeble the vibrations. And, just as the harmonics * of a musical note can no longer be detected by the ear when the note is sounded faintly, so the secondary oscillations of a vibrating particle cease, as their amplitude is diminished, to produce a visible effect in the spectrum, long before the fundamental vibration is extinguished. Moreover, the spectroscope affords as yet absolutely no criterion for distinguishing between the division of dissimilar and the separation of similar atoms — two essentially differ-

* For an account of Mr. Johnstone Stoney's ingenious harmonic theory of line spectra, see Schellen's Spectrum Analysis, Appendix A (English translation).

ent operations, although both included under the somewhat unsatisfactory term "dissociation." Other instances might be alleged, suggestive at once of the obscurity which still involves this subject, and of the subtle complication of causes which we have to unravel in dealing with it; but we believe we have said enough to show that, as a universal explanation of spectroscopic phenomena, the "dissociation theory" is untenable.

This is not the place to discuss Mr. Lockyer's striking and suggestive remarks on the behavior in solar eruptions of lines called by him "basic," because due, in his opinion, to the presence of an identical base in two or more metals to whose spectra they are common. He notes that these lines appear predominantly when metallic vapors are injected from beneath the surface of the sun into the glowing atmosphere of hydrogen constituting the "chromosphere," and infers dissociation at the elevated temperature of the interior, followed by re-association in the cooler regions above. It is a subject well worthy of further investigation; but in the mean time we may be permitted to observe that, even apart from the probability that many such coincidences are only apparent,* they possibly indicate molecular affinities other than identity of substance.

We have now, to some extent, cleared the ground for the consideration of Mr. Lockyer's "appeal to the stars." His view is, that, heat being the great dissociating agent, our observation of chemical separations may be indefinitely extended, with the range of temperature at our command, by studying the comparative effects produced by the variously graduated, but inconceivably potent, furnaces of the celestial spaces. In other words, bodies which maintain their union at the highest temperature available in the laboratory, may be discovered, with the aid of the spectroscope, to exist in a divorced condition in the atmosphere of the stars. The idea is doubtless a just one, and will perhaps some day fructify; but of its actual realization we cannot find that any valid evidence has yet been offered.

The first to analyze stellar light with the prism was Fraunhofer. As early as 1823 he observed that the dark solar line, named by him F, and long afterwards shown to proceed from the absorptive action of hydrogen in the sun's atmosphere, was repeated in the spectrum of Sirius; while D (the characteristic orange-yellow line of sodium) was visible in the spectra of Betelgeux, Castor, Pollux, and Capella. Shortly after the publication of Kirchhoff's great discovery, the subject was resumed, although with little result, by Donati of Florence; and it was not until 1862, when it was almost simultaneously taken in hand by Father Secchi in Rome, and by Dr. Huggins in this country, that any notable advance was made towards founding a science of stellar spectroscopy. Exceptional difficulties of observation attended and impeded their labors. In the largest telescopes hitherto constructed, the most brilliant stars appear only as points of light; their spectra have consequently no sensible breadth, and present no surface for study. This inconvenience can, it is true, be remedied by the use of a cylindrical lens, which lengthens the luminous point into a line, again extended into a band by the action of the prism; but this involves dispersion in two directions, and entails a considerable loss of light, the very subject-matter of enquiry. Moreover, the continual fluctuations of our atmosphere incredibly embarrass exact measurements; while the necessary restrictions of position in the object to be examined, together with the chances and changes of weather, render the thorough investigation of a single star spectrum the work of many years.*

The main results of Father Secchi's work among the stars are contained in the volume with the title of which we have headed this article. The death of the author, which took place at the Collegio Romano, February 26, 1878, followed closely upon its publication, so that we have in it the final utterance of the eminent Jesuit astronomer. Owing to the relatively imperfect instrumental means at his command, he aimed at extent rather than accuracy of observation. Accordingly, the first systematic attempt at the classification of star spectra is due to him. A sweeping survey of the heavens, embracing over four thousand stars, enabled him to define four spectral orders or types, which serve usefully as at least a provi-

* As the dispersive power of the spectroscope is increased, lines, previously supposed coincident, are in many cases found to be divided by a minute interval. We may mention, as an example, the coronal ray, numbered 1,474 on Kirchhoff's scale, believed, until Professor Young succeeded, in 1876, in separating them, to agree in position with a line in the spectrum of iron.

* For a description of the apparatus employed in the observation of stellar spectra, see Roscoe, Spectrum Analysis, pp. 232–4; Huggins and Miller, On the Spectra of some of the Fixed Stars, Phil. Trans. ii., 1864.

sional framework within which to fit and shape our knowledge as it grows.

The first order is the most numerously and brilliantly represented. It is composed exclusively of stars shining with a white or bluish light, and includes many of the most conspicuous jewels of our midnight skies — Sirius, Vega (the principal star in the Lyre), Castor, Regulus, Altair in the Eagle, Rigel in the knee of Orion, etc. The spectra of these stars are characterized by the exceptional breadth and blackness of the four hydrogen lines, and by the faintness of the metallic lines of absorption. Those, however, belonging to sodium, calcium, magnesium, and iron, have been recognized, and innumerable others await future determination. More than half the visible stars belong to this class.

The second order comprises yellow stars, such as Capella, Arcturus, Aldebaran in the eye of the Bull, Pollux, Dubhe * (the brightest star in the Great Bear), and our own sun. They exhibit spectra closely and finely ruled in black, precisely analogous to the solar spectrum, many of the lines in which have been identified in the light of these sister suns. Hydrogen lines are present, but less marked than in the preceding class. About a third of the classified stars are of this type.

The spectrum characteristic of the third order is of a composite nature, the usual dark metallic lines being, as it were, superposed upon a fluted background, presenting the appearance of a strongly illuminated row of columns seen in perspective, the bright sides turned towards the red or less refrangible end of the spectrum. The hydrogen lines are faint, and in some cases absent. About thirty stars, most of them of a reddish tint, and some of them noted variables, have been recognized as belonging to this class, which includes Mira in the Whale, called "wonderful" because of its strange waxings and wanings; Betelgeux in the shoulder of Orion, *a* Herculis, and Antares in the Scorpion.

The fourth order is composed of small, blood-red stars, none above the fifth magnitude. Their spectra, consisting of three broad columnar bands, *reversed, i.e.*, illuminated from the violet side, show a striking general resemblance to those given by the nuclei of comets, which again have been almost certainly identified with the banded spectrum of carbon, or one of its compounds.

Mr. Lockyer considers these four orders as representing, broadly, four stages on the road from formation to extinction. He argues that the whitest and brightest, and he presumes the hottest and *youngest*, stars exhibit the simplest spectra, and therefore contain the fewest elements, and those of the lowest atomic weights; that, with decreasing temperature and advancing years, heavier and more complex bodies are formed, free hydrogen disappears, and metallic lines are replaced by the bands and flutings characteristic of oxides and metalloids. He sees the substances with which we are familiar progressively developed, as the first fierce heat of stellar existence declines, out of their primordial elements or element, and traces, in the continual advance of matter towards more complex forms, the consequence of stellar refrigeration and decay.

This view presents a seductive, but in a theory of nature suspicious, appearance of completeness. It is too plausible to be altogether sound. We believe it can be shown that evidence is wholly wanting either of the activity in the heavenly bodies of what we may call "elemental evolution," or of such a succession of stellar ages as that assumed by Mr. Lockyer's hypothesis.

The spectra of stars of the first order are, to begin with, only at first sight less complex than those of stars of the second. Their apparent simplicity vanishes on closer inspection. Dr. Huggins, from whose testimony on this point there is no appeal, describes the spectrum of Sirius as throughout "crossed by a very great multitude of faint and fine lines." * That of Vega, he adds, "is as full of fine lines as the solar spectrum." There is, then, no reason to suppose that the number of "elements" contained in this class of stars is less than in our sun, although, from the feebleness of their absorptive action, they are far more difficult of detection. What is truly characteristic of the type is the immense predominance of the hydrogen lines, indicating the presence of that substance in large mass, and under considerable pressure. Indeed, the varying conditions under which hydrogen is found in different stars form probably the most reliable index to their

* *Dubhe* is *dub*, the Arabic name for "bear," pronounced soft. In this instance, as in many others, the title of the entire constellation was transferred to the brightest of the stars composing it. The name was handed down to modern times through the medium of the Alphonsine Tables. Ideler, *Ueber den Ursprung und die Bedeutung der Sternnamen*, p. 23.

* Phil. Trans., vol. cliv., p. 428.

respective physical constitutions.* Mr. Lockyer attributes the progressive weakening or even effacement of the well-known hydrogen lines, in passing from the first to the fourth order of star spectra, to the gradual cooling and consequent withdrawal of the gas from a free condition to a state of combination with other substances. We hold, on the contrary, that this enfeeblement is occasioned, not by the disappearance of free hydrogen, but by its presence in a more exalted condition of incandescence, causing it to replace, partially or wholly, the light that it absorbs. This opinion is strengthened by the remarkable fact that in certain stars these lines actually appear *bright* as compared with the rest of the spectrum. We have only to consider what takes place in the central star of our planetary world to understand the significance of this phenomenon.

The sun is encompassed with an atmosphere of flaming hydrogen. This, when seen isolated, as in eclipses, exhibits the peculiar bright rays so familiar to spectroscopists; but because its temperature is lower than that of the glowing mass it surrounds, it absorbs more light than it radiates, and its lines, consequently, show dark when projected on the dazzling surface of the photosphere. But if the incandescence of this fiery "sierra" be gradually increased, until its light equals and then surpasses that of the central mass, the obscure gaps in the spectrum caused by its absorption will first disappear, as in Betelgeux,† and finally be replaced by bright rays, as in the second star of the Lyre.‡ This is actually observed to occur in sun-spots. The nucleus or darkest portion, owing doubtless to the downrush of cooler vapors, shows increased absorption; the faculæ, brilliant eruptive hydrogen jets, closely associated with spots, display bright lines; while in the intermediate or penumbral region the hydrogen rays, as might have been expected, usually fade out and vanish. Thus, so far as the evidence afforded by this particular substance is concerned, progression would seem to be in the opposite direction from that contemplated in Mr. Lockyer's theory. We, however, by no means desire to convey that red stars are, as a rule, hotter than white. We undertake to prove nothing of the kind. Our contention is merely that the *difference* of temperature between the body of a star and its surrounding atmosphere diminishes in passing from the first to the second, and from the second to the third and fourth orders. Heat is, in fact, in red stars more diffused, in white stars more concentrated. The full import of this distinction will become apparent further on.

The complete worthlessness of *negative* evidence as regards stellar constitution is forcibly illustrated by Professor H. Draper's recent discovery of the bright lines of oxygen in the solar spectrum. The conclusions to be drawn from the prismatic analysis of the heavenly bodies receive thereby an important qualification. From the appearance of certain lines we can still confidently argue the presence of the substance which they characterize; but we can no longer infer the absence of any particular body from the non-appearance of its representative rays. This objection applies equally to Mr. Lockyer's argument on the effacement of hydrogen lines, and to his reasoning on the emergence of metalloidal bands in the spectra of the stars. The "metalloids," or non-metallic elements, of which oxygen, carbon, and sulphur may be taken as specimens, are fourteen in number (exclusive of hydrogen, which possesses most of the qualities of a true metal). Many of these bodies are believed, and a few are now ascertained, to be reducible to a simpler state; and it is on this ground that Mr. Lockyer alleges their presence in the atmospheres of some stars as a proof of lowered temperature. He supposes that, at the white heat of Sirius, and even in the less vehement solar furnace, their constituent particles are incapable of uniting, and come together only in the relaxing fires of such waning luminaries as Betelgeux and Antares. Now the existence of oxygen in the sun is already proved, that of nitrogen is strongly suspected, and Mr. Lockyer has himself found traces of carbon in the coronal atmosphere.* It is hardly possible to doubt that in Sirius and its sister orbs the same substances are found under similar conditions. Dr. Draper's discovery has at least made it evident that their presence can hardly be established, and can never be disproved.

* Huggins, Proceedings R. Society, vol. xv., p. 149.

† With the best instruments traces of hydrogen absorption can be discovered in this star.

‡ β Lyræ is a variable star, showing bright lines at its maximum. γ Cassiopeiæ, by a singular exception, displays an unvarying spectrum of vivid rays. Both shine with a white light, but evidently belong to a totally different order of stellar existence from Sirius and Vega. All other stars showing bright lines are variable, giving, as a rule, banded spectra.

* Proceedings R. Society, vol. xxvii., pp. 308-9.

The facility with which this class of bodies may escape detection is due to their pre-eminent, though not exclusive, possession of an attribute which we may call — to borrow a phrase of Mr. Lockyer's coining — "molecular plasticity." The vagueness of the expression (although as good a one as could be chosen) accurately represents the indefiniteness of our present knowledge; we may, however, describe the quality meant to be conveyed by it as a certain adaptability of structure in the vibrating particles, causing them to change their manner of oscillation, and consequently their mode of radiation, with varying conditions. Indeed, we believe (as already hinted) that most of the hitherto unexplained anomalies in metallic spectra can be accounted for on the same principle. In the case of oxygen, Dr. Schuster's researches * have enabled him to distinguish four entirely different spectra, corresponding to four grades of temperature, of which the first (that due to the greatest heat) is found bright in the sun, while the next in order appears as dark rays. The peculiar value of this observation consists in the prospect it offers of determining with some approach to accuracy the temperature of the solar atmosphere; since it is obvious that the diminution of heat necessary to effect the change of spectrum occurs somewhere between the solar surface and the "reversing layer," or envelope of heterogeneous vapors extending to about one thousand miles from the sun's surface, and producing by its absorption the significant Fraunhofer lines.

It is indeed true that a marked increase of metalloidal absorption at a comparatively low temperature is probably indicated by the columnar or fluted structure of stellar spectra of the third and fourth orders. But this circumstance tells us nothing as to the thermal condition of the central parts of such stars. We have only to suppose the absorption to take place at a considerable elevation above their photospheres, in order to arrive at any degree of coolness that may be needed to produce it. This view is, in fact, alleged by Mr. Lockyer to explain the presence of certain remnants or survivals of carbon bands in the solar spectrum. He adds the suggestive remark that the outer atmosphere of the sun, and perhaps also the exterior planets, are "more metalloidal than metallic in their composition."* Now, if, owing to increased eruptive activity or any other cause, the density of these coronal vapors were largely augmented, we should have the precise state of things indicated by the spectra under consideration. It may be added that metallic lines are found by Dr. Huggins to abound in the spectra of Betelgeux and β Pegasi — both typical stars of the banded class — so that we may dismiss as unwarranted by observation the presumption of a progressive disappearance of these bodies *pari passu* with the more conspicuous development of metalloids.

An argument much relied on by Mr. Lockyer in support of his theory of elemental evolution is founded on the (apparently) abnormal behavior of calcium in the spectra of some of the brightest stars. Two closely associated lines in the extreme violet, characteristic of this metal at high temperatures (named respectively H and K), have been perceived to vary markedly in their mutual relations as observed in analyzed stellar light. From the spectrum of Sirius K is absent, and in that of Vega is barely discoverable, while in both H is conspicuous, as a wide and deeply-grooved furrow; in that of α Aquilæ (Altair), on the other hand, K is indeed plainly visible, but its width is only half that of its companion. From these facts it has been plausibly argued that, in the hottest stars, calcium is dissolved into two constituents, radiating respectively these two violet rays, the relative intensities of which, it was hoped, might prove a valuable index to stellar temperature and condition. Unfortunately, no such convenient finger-post has been provided for us. Dr. H. W. Vogel's recent investigations † overturn, in our judgment, the whole fabric of this reasoning. The photographs ‡ obtained by him of the hydrogen spectrum not only prove the entire series of twelve lines photographed by Dr. Huggins in the spectra of the white stars to be derived from that substance, but show an unmistakable coincidence between one of these remarkable lines and the dark band hitherto ascribed to the absorption of the vapor of calcium. Indeed, a simple inspection of Dr. Huggins's admirable photographs is sufficient to convince the most casual observer that the H line, falling in, as it does, with the

* On the Spectra of Metalloids, Phil. Trans., vol. clxx., part i.; *Nature*, vol. xvii., p. 148.

* Proceedings R. Society, vol. xxvii., p. 309.

† For an account of these researches, see *Nature*, vol. xxi., p. 410; *Chemical News*, March 12, 1880.

‡ Published at Berlin, in *Monatsberichte der Akad. der Wiss.*, July 1879, p. 550.

rhythmical progression of its associates, forms one of the same group, and is attributable to the same molecular vibration with them. The true calcium line is thus overlapped and concealed by the wider and stronger hydrogen line with which it has been confounded.

One unimpeachable instance, and one only, is on record of a permanent and marked change in a star's color within the historical period. Sirius — the "sparkler," or "star," *par excellence*, of the Greeks, the *canicula* of the Romans, at present the most conspicuously white star in the sky — is expressly described by Seneca* as ruddier than Mars, and is qualified by Ptolemy† as "reddish" (ὑπόκιρρος). We might add that Homer could not fitly have compared the brazen refulgence of the divinely-forged armor of Achilles to the steely glitter of our dog-star, although "the brightest of all that shine in the silence of the night."‡ But the old bard's eye for color was notoriously faulty, so that we need not bring him into court. His testimony is indeed superfluous, since the witnesses already cited prove beyond the possibility of cavil that the complexion of Sirius has changed from rubicund to pallid within the last eighteen hundred years. This fact alone appears to dispose of the view that a rosy tint is symptomatic of a declining stage in stellar existence.

Yet more striking examples of instability in the aspects of the heavenly bodies are, however, afforded by actual observation. Although it is improbable that the light emitted by any of the suns in space (our own not excepted) is absolutely constant, the number of stars recognized as "variable" hardly exceeds one hundred and fifty. Of these the great majority are of an orange or crimson color, and it may be stated broadly that all the more deeply tinted stars are subject to marked fluctuations in brilliancy. To the converse proposition — namely, that white stars display a sensibly steady lustre — there is (besides β Lyræ, which is set apart by the peculiarity of its spectrum) one notable exception, but one which, by the singularity of its nature, seems to confirm the rule. Algol in the head of Medusa, a bright star of the Sirian type, shines equably during two days and thirteen hours, then suddenly begins to decline, and at the end of three and a half hours has sunk from the second to the fourth magnitude, after which it recovers, in an equal time, its original splendor. The entire cycle of these changes is completed in two days, twenty hours, forty-eight and a half minutes, but the period is subject to slight perturbations. Now these appearances — of uniform radiance, interrupted by a relatively short phase of eclipse — contrast strongly with the gradual fading and flushing of other variables, and instantly suggest the intervention of an opaque body cutting off, at each revolution, a portion of the light of its primary. This view, although not entirely free from difficulties, is favored by the evidence of the prism, showing the radiations emitted by Algol unaltered in quality even at its minimum.

Information of a more positive kind is, however, afforded by the spectroscope regarding periodical stars of normal character. Variables, such as Aldebaran and Arcturus, whose spectra, in their brighter phases, resemble that of our sun, display, as their lustre wanes and their hue deepens, manifest symptoms of approach to the fluted type; while others definitely pass from one class to the other. In stars of the third and fourth orders, the bands of absorption are perceived, as their light diminishes, to darken and extend, their maxima, on the contrary, being frequently marked by the appearance of bright lines due to the presence of various incandescent substances. We have then in periodical stars those "migratory instances," the importance of which in natural enquiries Francis Bacon was the first to point out; and it is accordingly to them principally that our attention should be directed if we would penetrate the secrets of stellar constitution. But, before adverting to the various explanatory conjectures which have been hazarded on this subject, we must dedicate a few words to those strange cosmical apparitions now generally regarded as extreme cases of variability. We allude to new or temporary stars.

Twenty-three such instances are authentically recorded, from the memorable object which suggested the star-census of Hipparchus to the brief blaze seen four years ago in the constellation Cygnus; and no doubt many more have escaped notice. The suddenness of these celestial conflagrations is one of their most surprising features. On the evening of November 11, 1572, Tycho Brahe, lifting his eyes to the heavens, beheld near the

* Natur. Quæst. i. 1.

† Catalogue (Baily's edition), Memoirs R. Astronomical Society, vol. xiii., p. 62; Secchi, *Le Stelle*, p. 64.

‡ Iliad xxii. 27.

zenith a star brighter than Jupiter, which he felt certain had not been visible half an hour previously. Such was its brilliancy that keen-sighted persons were able to detect it at noon when the air was clear, and at night when the sky was so thickly overcast as to hide all other stars. After a few weeks, however, it began to wane, and at the end of seventeen months entirely disappeared. It is now supposed to be represented by a minute red star discovered by M. d'Arrest close to the spot in Cassiopeia indicated by the Danish astronomer. The recorded appearance of a similar phenomenon in the same region of the sky in the years 945 and 1264 suggested the very probable surmise that all three were luminous outbursts, at intervals of somewhat over three hundred years, of the same body. If this be so, its re-appearance might be looked for about the present time. It is worth noting that an overwhelming majority of such apparitions have occurred within or near the limits of the Milky Way. This circumstance was, indeed, alleged by Tycho in support of a theory (closely resembling that of Sir William Herschel) of stellar genesis by the condensation of nebulous matter; and it was even maintained by some that the *hiatus* in the galaxy could be discerned, whence the aerial substance of the phantom star of 1572 had been drawn! Without going to similar lengths, we may safely assert that such coincidences in position are not fortuitous, but indicate physical relations, the nature of which we can at present but imperfectly conceive.

Two "star-guests" (to borrow a Chinese phrase)* have, since the invention of the spectroscope, presented themselves for examination by the new method. On May 12, 1866, a star of the second magnitude, first seen by Mr. Birmingham of Tuam, suddenly flamed out in Corona Borealis. In twelve days it had declined to the sixth magnitude, and is now just discoverable as a faint telescopic object. Ten years later, November 24, 1876, M. Schmidt, director of the Athens Observatory, discovered, in the constellation of the Swan, a new star of the third magnitude, which continued for two or three months, although with constantly diminishing lustre, to be visible to the naked eye. The spectra of both these sidereal strangers were studied — that of the first by Dr. Huggins, that of the second by M. Cornu of the Paris Observatory — and with very significant results.* Superposed upon a continuous spectrum crossed by dark bands and lines, analogous to that of Betelgeux, shone a series of brilliant rays, in which the greater part of the star's light was concentrated. Several of these coincided with lines of hydrogen and magnesium; one appeared identical with the green coronal line, another with the yellow line of the chromosphere derived from an unknown substance named helium.† Thus it may be regarded as certain that the incandescent vapors which shone with such extraordinary splendor in these two singular objects were precisely the main constituents of the gaseous envelopes of the sun. So far both gave concordant testimony; but a divergence subsequently showed itself. In T Coronæ (the new star in the Northern Crown) the continuous spectrum of an ordinary small star survived the extinction of the bright lines; but in 'Nova' Cygni exactly the reverse occurred. On September 2, 1877, the spectrum of this star (which, having sunk nearly to the twelfth magnitude, had ceased to attract special notice) was examined in Lord Lindsay's observatory at Dunecht. A singular and unexpected piece of information resulted. The light when analyzed was perceived to be almost entirely homogeneous — that is to say, it emerged from the prism as a single green ray, coinciding in position with one of the three bright lines emitted by gaseous nebulæ.‡ We are then, by this discovery, forced to admit the possibility of a stellar body radiating, under certain conditions, distinctively nebular light.

We may now briefly consider the different interpretations which have been put upon these appearances. It should, however, be steadily borne in mind, that since no line of demarcation can be drawn between periodic and temporary stars, we cannot accept as satisfactory any hypothesis which excludes from consideration either class of facts. What accounts for one should be capable of accounting for the other, since uniformity of cause ordinarily underlies an uninterrupted succession of phenomana. Variable stars are of all degrees of irregularity, from the steady phases of Algol to the fitful outbursts of η Argûs,§ which may indeed be

* Cosmos iii., p. 210.

* Proceedings R. Society, vol. xv., p. 146; *Comtes Rendus*, t. lxxxiii., p. 1172.

† Both helium and the substance radiating the coronal line are believed by Mr. Lockyer to be different modifications of hydrogen.

‡ *Astronomische Nachrichten* (No. 2158), vol. xc., p. 351.

§ The variations of this southern luminary may be

regarded as a link between stars showing a maximum and minimum of brightness, and those emerging from long obscurity into brief splendor. We must then instantly reject, on the one side, theories seeking to explain periodic, while neglecting temporary stars; and, on the other, theories postulating sudden and extraordinary conflagrations to the exclusion of gradual and orderly ebbings and flowings of lustre. To the first category belong the ideas that variability may be caused by the rotation of the star itself, showing alternately a bright and a darker side, or by the revolution of an eclipsing satellite (admissible, possibly, in the exceptional case of Algol); to the other, the suppositions that new stars may owe their temporary splendor either to a fortuitous collision with another stellar body, or to a sudden plunge into a nebulous ocean. Such catastrophes are indeed possible, but they stand apart from our present enquiry.

There remains the "meteoric" theory, the "dissociation" theory, and the "sun-spot" theory. The first of these is open to many objections; we need mention but one. The undisputed fact that red stars are pre-eminently inconstant sufficiently shows that variability is not due to the action of an extrinsic cause, such as the in-pouring of meteoric matter, whose motion is instantaneously converted into heat, but is a quality inherent in a certain form of stellar existence. The view that the phases of sidereal brilliancy are the result of a "delicate balance of temperature," compelling, as the equilibrium is shifted in the direction either of heat or cold, extensive dissociations, or equally extensive combinations of chemically related substances, with the variations of absorption and brightness thence ensuing, was originated independently by the late M. Angström of Upsala, and by Mr. Lockyer. The theory gives a tolerably plausible account of some of the facts, but can hardly be said to include them all. In many variables, for example, the increase of light is accompanied by the appearance of brilliant rays in the ordinary spectrum of absorption. Now we do not clearly see how to account for their presence on the hypothesis of dissociation. It may be suggested that they arise not from simple incandescence, but from actual burning, or combination, with development of light and heat. Even if we set aside the objection that the theory would be inverted and distorted beyond recognition by making the maxima of stellar brilliancy to coincide with the occurrence, not of dissociation, but of energetic association, we are confronted by the fact that hydrogen and many other gases emit, during combustion, rays of all refrangibilities. In other words, they give a continuous, not a line spectrum. Of such an emission there has never been perceived any trace in variable stars. No hypothesis, then, involving literal conflagration, can be regarded as admissible.

We are driven, in the last resort, to what we have termed the "sun-spot theory." This was suggested to Father Secchi by his observation of the strong resemblance exhibited by the spectra of solar spots to those of some periodical stars in their obscure phases. According to this view, variability would be the result of increased or diminished eruptive energy, causing increased or diminished absorption. The analogy between such cycles of change and the solar "eleven-year period" is drawn closer by the circumstance that variable stars are commonly subject to a secondary period of longer duration, corresponding to the "sixty-year period" of sun-spots, by which their maxima and minima are alternately accelerated and retarded. It must not be supposed, however, that the fluctuations of stellar light can be explained as mere differences in the amount of superficial "maculation." Sun-spots are but one of the least symptoms — perhaps a surviving relic — of the condition which we contemplate, not only in such capricious luminaries as Mira Ceti and η Argûs, but even in the comparatively steady orbs of Aldebaran and Arcturus. The absorption producing marked obscuration no doubt occurs in the coronal atmospheres, or at least at some considerable height above the photospheres of such stars. Vast masses of incandescent vapors are, we may conceive, ejected from the central body during epochs of disturbance — precisely as hydrogen, helium, and other substances are flung forth from the interior of the sun in the fantastic forms known as "prominences" — and produce, as they cool in the higher regions to which they are projected, the bands observed in the darkening spectra of variables. The bright lines frequently visible would meet with a similar explanation. We see in fact in the solar chromosphere a repetition, on a much diminished scale, of their

approximately represented by fluctuations from the first to the sixth or seventh magnitude in a period of seventy years, including a threefold maximum. Chambers' Descriptive Astronomy, p. 501, 3rd ed.

immediate cause. The effect of a sudden augmentation in extent and incandescence of the glowing envelope of the sun, such as tends to take place with every access of eruptive energy, would be the manifestation in its spectrum of the identical vivid rays emitted by temporary as well as by periodical stars. It will not, indeed, have escaped the notice of our readers that this rationale of variability implies an inversion of maxima and minima similar to that involved in the "dissociation" theory. Under normal circumstances, the minimum of light coincides with the maximum of disturbance and consequent absorption; but when the phase attains the stage of intensity at which bright rays begin to appear, the greatest splendor is reached simultaneously with the highest point of internal activity. There seems, however, no reason why this apparent incongruity should prove fatal to the hypothesis at present under consideration, which we are at any rate indisposed to reject until something more satisfactory can be substituted for it.

In what aspect, we may now enquire, does the general problem of stellar constitution present itself to our minds? In the first place, it cannot be too emphatically stated that whatever theory of variability we may adopt must necessarily include an explanation of distinctions in optical characteristics, since variable stars, by their migrations from one spectroscopic class to another, afford convincing proof that the condition of change is no other than the condition of difference. In accordance with the hypothesis just enunciated, we should then reply that the various degrees of absorption revealed by the spectroscope in the atmospheres of different stars, correspond to as many stages of eruptive activity in their central masses — those of white and equable splendor standing at the bottom of the scale, those of deep tint and irregular lustre at the top. Far from finding any evidence to support the view that the latter class represent, so to speak, the expiring embers of the former, we believe it might be plausibly argued that development, if traceable at all, takes the contrary direction. Stars of the fourth order, for example, wear the aspect of luminaries whose photospheres are in course of formation, rather than of orbs slowly cooling into invisibility. They might, in fact, be more reasonably regarded as juvenile than as decrepit suns. Their apparent minuteness is most probably occasioned by the enormous loss sustained by their light in traversing a dense and profound vaporous envelope, while the bright rays with which their lustre is frequently enhanced bear witness to their exalted condition of volcanic activity. As the process of condensation advanced, the heavier substances would — with the relaxation of the unexplained repulsive force conspicuously at work in so many solar phenomena — withdraw more and more into the interior of the star, whose gradually clearing atmosphere would permit a freer escape of light and consequent increase of brilliancy.

As regards the relative temperatures of the stars, we are still, to a great extent, in the region of speculation. It is true that Dr. Huggins and Mr. Stone * have, by some extremely delicate observations, placed us in possession of the facts that Sirius, the brightest of white stars, sends us only two-thirds of the heat which reaches us from Arcturus, while Vega's thermal powers are surpassed, in the same proportion, by those of the golden star that holds watch and ward over the Great Bear. We need hardly observe, however, that radiation is no reliable test of temperature; and its evidence, in this case, seems to be contradicted by the richness in photographic emanations of the stars deficient in heat-rays. On the whole, we incline to the belief that, while the deep-hued orbs possess a greater store of energy, their paler brethren realize that energy in a more tangible form, and collect it into a more limited space. In other words, their photospheres are hotter, and their atmospheres clearer and cooler, than those of more volcanic luminaries. But on this and many similar points the *data* are wanting to enable us to form more than a probable opinion. These we may hope that the future will to some extent supply. The true field of stellar discovery is solar observation; and here Mr. Lockyer is one of the foremost among a band of laborers whose zeal, industry, and skill need no encomium from us. With the aid of the prism, many of the doubts and difficulties which still beset enquiry into the physical condition of the sun will perhaps ere long be dispelled; and we may then with renewed courage attack the strictly analogous problems offered to our consideration by the stars.

In 1612, a German astronomer named Simon Marius, detected in the constellation of Andromeda an elliptical patch of

* Proceedings R. Society, vol. xvii., p. 309; vol. xviii., p. 165.

hazy light, "like a candle," as he described it, "shining through horn." Forty-four years later, the celebrated Dutch philosopher, Huyghens, discovered the great nebula in the sword-handle of Orion. Although both these singular appearances are distinctly visible to the naked eye, they attracted no intelligent observation from uncounted generations of star-gazers, but were reserved to figure among the numerous trophies of the Galilean "cylinder." The number of nebulæ now known to astronomers considerably exceeds five thousand,* and fresh discoveries are of frequent occurrence. We must regard as one of the most noteworthy achievements of modern science the revelations made by the spectroscope concerning the nature of these enigmatical bodies. They not only gratify that noble curiosity which irresistibly impels our often baffled yet ever renewed search into the secrets of nature, but afford a significant warning against the undue extension of apparently legitimate inference. Between a comparatively loose aggregation of stars, such as the Pleiades, and a dim blur of nebulous light just discernible in the most powerful telescope, no dividing line can be drawn. Star-groups merge, by insensible gradations, into star-clusters, star-clusters into star-dust, star-dust into star-mist, while, with every addition to the space-penetrating power of the instruments employed in observation, a certain proportion of objects hitherto deemed "irresolvable" belie that character, and show symptoms of stellar constitution. The conclusion seems inevitable, and is nevertheless fallacious, that difference of distance forms the only distinguishing circumstance, and that nebulæ are, in fact, sidereal systems plunged, at various depths, in the tremendous abysses of space, and sending us, by a few feeble rays, faint tidings of an existence manifold and glorious as that of our own sparkling galaxy. This view was accordingly adopted by many astronomers, notwithstanding the obvious association of nebular and stellar matter both in "nebulous stars" and in such cosmical aggregations as the Magellanic Clouds. New and irrefragable evidence is now, however, available.

On August 29, 1864, Dr. Huggins turned, for the first time, his spectroscope upon a nebula — one of the "planetary" kind, situated in the constellation Draco, and presenting the appearance of a blue-green shield embossed with a shining nucleus.* The result took the observer somewhat by surprise. At the first glance, its light seemed to be absolutely monochromatic, a single ray of a sea-green tint being alone visible. By degrees, however, two other lines, both slightly more refrangible than the first, were made out; and these three lines may be regarded as forming the typical spectrum of a certain class of nebulæ. It follows obviously and incontestably that such bodies are, in great part, if not wholly, composed of glowing gas. But inference does not stop here. By careful measurements and comparisons Dr. Huggins was able to assign the principal nebular ray — that which is never found absent,† though often alone — to incandescent nitrogen; while the third and most refrangible was perceived to coincide with the F line of hydrogen. These conclusions are fortified by the observation, that when the spectra of hydrogen and nitrogen are, by suitable manipulation of temperature and pressure, respectively reduced to one ray, that ray is, in each case, found to be identical with the nebular line.‡ It is then beyond doubt that gaseous nebulæ are composed of nitrogen, hydrogen, and a third vapor, as yet unidentified, giving the middle line of their spectra; and it may moreover be confidently asserted that their temperature is comparatively low, and their density extremely small — not much greater, probably, than that of the residual gas in "vacuum tubes."

The excessive simplicity of nebular spectra is not then due to the dissociative energy of heat; and if we are to adopt Sir William Herschel's hypothesis, and regard nebulæ as "star-protoplasm," the question arises, in what condition do the multifarious substances found in a full-grown star exist in these sidereal nurseries? If it be said that they have as yet no being save in the affinities of their elements, we would ask what force holds those affinities in check, and suspends the production of the various forms of matter known to us in sun and stars? On the other hand, if they exist neither *in esse* nor *in posse*, we must look elsewhere for the secret of stellar formation. Indeed, progressive chemical combination would inevitably betray itself in the increasing

* 5,079 nebulæ and star-clusters are included in Sir J. Herschel's catalogue, published in Phil. Trans., 1864.

* D'Arrest, *Astronomische Nachrichten*, vol. lxxix., p. 195.

† Phil. Trans., vol. clviii., p. 540.

‡ Frankland and Lockyer on Gaseous Spectra, Proceedings R. Society, vol. xvii., p. 453.

complexity of nebular spectra.* New lines would become visible as new substances were evolved, and we should naturally expect to find specimens of every stage of development, from the monochromatic radiations of the "dumb-bell" to the continuous spectrum of the Andromeda nebula. No trace, however, of such an advance is perceptible. One invariable type is common to all the gaseous nebulæ whose light has been analyzed. In a very few cases, it is true (notably in the Orion nebula), a fourth ray — the dark blue of hydrogen — is visible; in several, all except the nitrogen line are too faint to be discernible; but the chemical composition of all is evidently the same. We may then reasonably doubt whether the intimate connection obviously existing between stars and nebulæ is of the precise nature contemplated by the advocates of the "nebular hypothesis." It is at least premature to affirm that it is that of simple development. Take the case of the solar system. If any vestige of the primitive nebula out of which it is supposed to have been formed be discoverable, it must be in that vast lenticular envelope, extending far beyond the earth's orbit, known as the zodiacal light. But the physical constitution of this perplexing appendage, as disclosed by its spectrum,† shows no analogy whatever with any known nebula. In fact, of "nebulous fluid," properly so called, no trace can be found within the precincts of the sun's dominion.

Out of about one hundred and forty nebulæ hitherto submitted to the scrutiny of the prism, thirty-one or thirty-two show bright lines,‡ the remainder emitting continuous light of too feeble a character to endure searching exploration of its minor peculiarities. Some of these spectra are singularly truncated at the red end, as if by the interposition of a veil of absorbent material, and present a mottled and unequal appearance, suggesting an aggregation of lucid beams rather than an uninterrupted sequence of radiations. The stellar nature of the bodies from which they are derived is thus seen to be extremely problematical.§

It is a significant fact that the whole of that class of nebulæ named by Sir William Herschel "planetary," because exhibiting a tolerably defined and almost uniformly illuminated disc, give, without exception, a spectrum of bright lines. These bodies, according to one view of their constitution, are globular masses of feebly luminous gas, of such vast extent that the least of them, if placed centrally with the sun, would in all probability embrace many times over the remote orbit of Neptune. The total absence or slight amount of central condensation is accounted for by the internal absorption of their light, causing them to offer to our vision only, as it were, a shell of ignited vapor. Another view, which has of late received considerable support, regards them as enormously remote nebulous stars or star-clusters. It is a well-established optical principle that the brightness of a luminous surface is not lessened by distance, for the simple reason that the superficial area included in the visual angle increases in exact proportion as the light from each unit of that area diminishes. A light-giving surface (so long as it subtends any appreciable angle) will thus gain rapidly upon a light-giving point with the equal withdrawal of both from the eye of the observer, and will eventually outshine and survive it, whatever the original disparity in their respective splendors. It follows from this reasoning that a stellar nucleus, surrounded by a luminous atmosphere of great extent, which, at a certain remoteness, wears the aspect of a nebulous star, will, if the distance be sufficiently increased, cease to show any appreciable stellar light, and will finally shine with the dim radiance of a planetary nebula.*

The theory is neat and plausible; but it must be owned that it encounters a serious difficulty in the tendency to annular and spiral formation detected in this class of objects by the great Parsonstown reflector. We have seen, however, by the example of the new star in Cygnus, that a stellar body may undergo an apparent metamorphosis into a nebula — in other words, that nebular light may occasionally serve as a garment to be put off and on; and another instance of this species of celestial masquerade is afforded by Mr. Pogson's surprising observation of the sudden transformation of a nebula into a star, and its return after a few days to its original condition.† In-

* Huggins, Proceedings R. Institution, vol. iv., p. 448.

† Monthly Notices, vol. xxxvi., p. 48.

‡ *Astr. Nach.* (No. 1908), vol. lxxx., p. 189.

§ Huggins, Phil. Trans., vol. clvi. (1866), p. 382, note.

* Arago, *Annuaire du Bureau des Longitudes*, 1842, pp. 410–12 and 441; Stone, Proceedings R. Society, vol. xxvi., p. 156.

† Chambers, Descriptive Astronomy, p. 545. Pog-

deed, the phenomena of variability presented by some of these bodies are among the most curious in nature. On October 11, 1852, Mr. Hind discovered a small nebula in the constellation Taurus. On October 3, 1861, M. d'Arrest found that it had totally vanished. Two months later it was again observed. It is now invisible in the most powerful instruments.* Again, the nebula surrounding Merope in the Pleiades, detected in 1859 by that admirable observer M. Tempel, is certainly subject to fluctuations in brightness. A strong case of (probably periodical) change has been made out for the vast nebular regions in Orion and Argo, while the incessant contraction and dilatation of a minor object of the same kind have been remarked by M. Schultz. Conjecture itself is silent in the presence of these strange stirrings of mysterious cosmical activities.

Looking upwards at the vast expanse of a moonless sky on a clear night, we are at once dazzled and delighted with the multitudinous blazing of the celestial watch-fires. Like Jessica, we sit and see

> how the floor of heaven
> Is thick inlaid with patines of bright gold;

but to submit that exquisite and elaborate workmanship to the prosaic analysis of number seems, at first sight, not only unpoetical, but impracticable. Yet the stars visible to the unaided eye form but a minute fraction of those whose remote rays fail to stir a responsive thrill of consciousness. It has been ascertained that the most piercing vision can discern in both hemispheres barely six thousand; while the number of those perceptible at one time to an observer of average sight scarcely exceeds two thousand. On the other hand, the sum total of the heavenly host visible with the great telescopes now in use is estimated at the enormous figure of seventy-five millions; and in certain parts of the Milky Way the background of the sky is still dim with the commingled radiance of innumerable and indistinguishable orbs. The effect of number in the starry multitude is enhanced by the restlessness of their light, which seems to allow us no leisure to attend to the individuals of which that multitude is composed. It has long been known that the twinkling of the stars results in some way from causes within our own atmosphere; but the recent enquiries of M. Montigny, of the Brussels Observatory, have led to a clearer understanding of the subject than was previously attainable.* Our air, it appears, performs the office of a prism whose refractive power is, in its various strata, subject to continual fluctuations. Thus the image of a star which we perceive is formed by the recomposition of a number of diversely-colored rays previously separated by the varying amount of refraction undergone by them severally. Each of these rays reaches the eye by a different route, and encounters, so to speak, different adventures by the way — now of increased, now of diminished refraction, sometimes of total interruption or diversion. The result is an incessant change of tint, corresponding to the momentary reinforcement or subtraction of each component beam, the color visible being invariably complementary to that withdrawn. This chromatic flickering, or "twinkling," is excessively rapid, occurring in white stars as often as seventy times in a second, but with considerably less frequency in those whose light the spectroscope sifts into parti-colored zones. The fact that an increase of scintillation constitutes a reliable indication of the approach of rain,† is easily understood when we consider that the amount of aqueous vapor present in the air is a main factor in its production. On the tops of high mountains and in equatorial regions the effect is imperceptible, except at very low altitudes, owing to the stillness and homogeneity of the atmosphere.

The opinion that the stars are in any real sense "fixed" was discarded with the superannuated cosmography of Alexandria. The audacious fancy of Giordano Bruno,‡ spurning the limits of exact enquiry, was kindled by the glorious harmonies of motion hypothetically performed by these far-off suns; Robert Hooke,§ less daring and more scientific, tentatively advanced the same view; and Edmund Halley‖ confirmed their conjecture by pointing out, in 1717, the notable discrepancy between the positions of Aldebaran, Sirius, and Arcturus, as given by Ptolemy, and those ascertained by actual observation. The determination of the amount and direction of stellar proper motions forms at present an important

son's observations were fully confirmed by those of E. Luther and Auwers.

* Flammarion, *L'Univers Sidéral*, 1880, p. 808.

* Secchi, *Le Stelle*, p. 132.

† *Bulletins de l'Académie Royale de Belgique*, t. xlii., p. 998.

‡ *Cena de le Ceneri*, Dial. 4.

§ Posthumous Works, p. 506.

‖ Phil. Trans., vol. xxx., p. 737.

branch of sidereal astronomy, and already indicates conclusions of sublime interest. It is evident, however, that a large element of uncertainty enters into the estimation of movements executed at every imaginable angle to the line of sight, and projected consequently with every possible amount of foreshortening on the surface of the celestial sphere. This apparently insuperable difficulty has been to a great extent removed by an ingenious application of spectrum analysis. No more striking example of the penetrating and versatile character of this method of research could be adduced than the discovery we are now about to describe.

The principle upon which it is founded occurred to Doppler in 1841, but was invalidated by a misapprehension. He remarked that the colors of stars must be affected by their motion to or from the earth, precisely in the same manner that the pitch of a vibrating tuning-fork is alternately raised and lowered when it is caused to approach and recede rapidly from the ear. The same fact is familiar in the shrilling and sinking of the steam-whistle when a train happens to pass at full speed. Now it is undoubtedly true that, since the perception of color depends upon the number of luminous vibrations striking the retina in a given time, if the source of those vibrations be in motion towards or from the eye, that number will be increased or diminished, and the resulting tint proportionately elevated or degraded in the chromatic scale. An important circumstance was, however, neglected in these speculations. The visible part of the spectrum alone was taken into account, while it was forgotten that at either extremity lay an invisible set of waves, which would, equally with the luminous beams, be altered by the motion in question. Hence the only effect of translation in the line of sight would be a shifting of the entire spectrum, some rays previously visible sinking into obscurity, and as many previously invisible being exalted into luminosity, but the net result remaining to the eye absolutely unchanged. Now it is precisely this shifting of the spectrum which prismatic analysis, by observation of the corresponding displacement of the well-known Fraunhofer lines, affords the means of detecting and measuring, thus lending, after a quarter of a century of unfruitfulness, unexpected validity to Doppler's abortive proposal.

It is to Dr. Huggins that science is indebted for the successful employment of this new mode of investigation. Father Secchi, it is true, turned his attention about the same time in the same direction, but failed, owing to the deficiencies of his instruments, to achieve any trustworthy results, and indeed ended his life unconvinced of their attainability. The delicacy of the observations required may be estimated from the fact that to produce a displacement equal to the interval separating the components of the double line of sodium (which can be divided only by a spectroscope of considerable dispersive power), would demand a rate of approach or recession of one hundred and ninety-six miles per second. But this velocity is more than ten times that of the earth in its orbit, and the average real motions of the stars are almost certainly inferior even to this comparatively slow pace. The assertion that a quantity so minute as the ensuing displacement of the spectral line is susceptible of exact measurement, might well provoke a smile of incredulity in those unfamiliar with the extraordinary refinement of modern instrumental means; yet it is impossible to doubt that the conclusions arrived at are, within certain limits of possible error, entirely reliable.

The results of Dr. Huggins's first experiments in this branch were communicated to the Royal Society in April, 1868, and were confirmed, although in some cases slightly modified, by subsequent investigations. The method pursued was as follows. A line was selected in the spectrum of the star to be examined, which, from its character and companions, was unmistakably derived from some particular substance. Any deviation from its normal position which could then be detected was attributed — and, beyond question, rightly attributed — to motion in the line of sight. In the case of Sirius, the first star experimented upon, the chosen test was the F line of hydrogen, which, by a series of careful measurements, was shown to be slightly displaced towards the red end of the spectrum. In other words, its refrangibility was lowered by an increase in the corresponding wave-length, caused by a movement of recession estimated at more than twenty-six and less than thirty-five miles per second. Deduction having been made of the earth's orbital velocity — then directed *from* the star — there remained about twenty miles per second to be divided, in undetermined proportions, between Sirius and the sun. It is no novelty to our readers to be informed that the entire solar sys-

tem is advancing through space towards a point situated in the constellation Hercules. Of the rate of this motion we are, however, ignorant, since the calculation of Otto Struve, making it little more than four miles a second, was undoubtedly based upon unsound assumptions. There remains, then, this source of uncertainty in estimating stellar movements. Among the stars which, like Sirius, are increasing their distance from us at rates varying from twelve to twenty-eight miles each second, are Betelgeux, Rigel, Castor, and Regulus; Vega, Arcturus, Pollux, and Deneb in the tail of the Swan, are, on the other hand, diminishing it even more rapidly. Of the seven conspicuous stars in the Great Bear forming the figure recognized from the earliest times as the Wain or Plough, the most brilliant (being the "pointer" nearest the pole) is found to be approaching the earth; the next five are swiftly receding from it; while the movement of the seventh has the same direction, but a greatly inferior velocity. And this brings us to a very remarkable subject of enquiry.

It has been long remarked that the distribution of stars in the heavens betrays the existence of relations, the precise nature of which it is difficult to imagine, and impossible to define. More than a hundred years ago, the Rev. John Michell, a thinker of considerable originality, was able to show that the chances against the occurrence of such a group as that formed by the six bright Pleiades, on the supposition of a random sprinkling of stars through space, were about half a million to one;* and the same reasoning applies with equal or greater force to innumerable other stellar aggregations. Indeed, the more closely the face of the sky is studied, the more clear becomes the evidence of law and order inscribed upon it. This species of probable persuasion, however, needs the support of more positive proof, now forthcoming, and likely to accumulate. The orbital motions of double stars, announced by Sir William Herschel in 1803, offered the first examples of the connection by a physical tie, of separate members of the sidereal universe. The number of such systems — some of them containing as many as five members — now known to astronomers is no less than ten thousand three hundred.† Association on a larger scale, however, had long been suspected, and may now be said to be ascertained. The result is largely due to the industry of Mr. Proctor, who, with the express purpose of demonstrating the reality of what he has termed "star-drift," undertook the labor of charting the proper motions of over fifteen hundred stars. Extensive community of movement was thus rendered, it might be said, evident to the eye. Whole battalions of stars were perceived to be marching across the sky in an identical direction, and doubtless under the compulsion of an identical force. Thus, seventy or eighty orbs, forming the constellations Gemini and Cancer, are sweeping together towards the zone of the Milky Way; while in Taurus is visible that singular unanimity of motion which led Mädler to fix upon Alcyone in the Pleiades as the central sun of the entire sidereal system.* But the instance of "drift" most striking to the imagination is that presented by the stars of the Plough. The observation that five of these seven lucid orbs (excluding the first "pointer" and the third "horse") possessed a seemingly identical proper motion, led Mr. Proctor, in a paper read before the Royal Society, January 20, 1870, to signalize them as in all probability forming a physically connected system, and he accordingly invited the application of Dr. Huggins's new method as a sure criterion of the correctness of his surmise. The response of the spectroscope was conclusive. All five were (as already mentioned) discovered to be receding at the same rate from the earth, while the independence of their two companions, presumed from the difference of their apparent motions, was, by the non-concordance of their real motions, conclusively demonstrated.

We see then here five mighty suns (besides two smaller attendants) associated into a system the vastness of which staggers thought. At the lowest estimate of their distance (for none of them possess any sensible parallax), a single second of arc would represent an actual linear extension of a thousand millions of miles, and may represent an amount indefinitely greater. But the extreme members of the group are separated by an apparent interval of no less than nineteen degrees of the celestial sphere, or sixty-eight thousand four hundred seconds! Again, the revolution round one of these stars (Mizar, the middle horse of the Wain) of a satellite sun named Alcor, barely dis-

* Phil. Trans., vol. lvii., p. 246 (1767). Also Proctor, Universe of Stars, p. 21.

† A Catalogue of 10,300 Multiple and Double Stars, vol. xi. of Memoirs of R. Astr. Society.

* Proctor, Universe of Stars, p. 120.

tinguishable from it with the naked eye, occupies, according to the calculation of Mädler, a period of seven thousand six hundred and fifty-nine years. How vast, then, must be the cycle in which these majestic luminaries (all of them probably far exceeding our sun in size and brilliancy) execute their harmonious orbits round some inconceivably remote centre! Our earth itself, with its long ages of geological transformation, is but as an ephemeris in the tract of time thus stretched out before the baffled imagination.

It is a circumstance to be carefully noted that all the five stars thus singularly united belong to the same optical category, exhibiting spectra of the purest Sirian type. We are not indeed thereby justified in assuming that a similar agreement prevails amongst the members of all analogous systems; but it is undeniable that, in certain regions of the sky, certain spectroscopic classes predominantly obtain. Thus, white stars are most numerous in the great constellations of Taurus and Ursa Major; in Hydra and Eridanus the solar type dominates; while the majority of the stars grouped together in Orion partake of the characters of both orders, displaying a peculiar greenish tinge as if from a suffusion of faint nebulous light.* It is besides common to find red stars surrounded by a *cortége* of smaller ones of the same color. From these evidences of natural grouping we should rather infer that spectroscopic distinctions correspond to inherent differences in stellar constitution, than that they represent successive stages of development. But on this subject it is premature to speculate.

We have already seen that the colors of stars depend mainly, if not entirely, on the nature of their atmospheres — or, to put it otherwise, that the light emitted by all is (approximately) the same, while the absorption suffered by that light, in its transmission to outer space, is different. Thus the beautiful complementary tints — the purple and gold, orange and azure, rose-pink and apple-green — visible in many double stars, find an explanation in what we may call complementary bands of darkness in their several spectra. As to the nature of the physical influence producing these singular correspondences, we are indeed in ignorance; but some dim indications of its mode of action may be discovered in the recent observation of M. Niesten, that the colors of double stars are conditioned by the form of their orbits, and vary with their mutual positions.* The fact is also full of significance that blue or green stars of a decided hue are never known to be solitary in their habits, but are either dependent or gregarious; so that Milton's firmament of "living sapphires" collapses at the touch of literal truth, none but telescopic stars supporting a comparison with that brilliant gem.

A vast and imposing subject still confronts us; but here we can do little more than indicate the conclusions towards which modern researches tend. The elder Herschel set before his mind at an early stage of his career the sublime object of attaining to a knowledge of the structure of the heavens. But his long life, joined to unwearied industry and rare genius, sufficed only to demonstrate the extraordinary complexity of the problem. Most of, if not all, his original assumptions have been overthrown by the progress of enquiry; but many truths, grasped by his vigorous intelligence in its successive approximations to the realities of the cosmical scheme, have been confirmed, and will, without doubt, yet bear abundant fruit. What has been called the "grindstone theory" of the universe, originated by Thomas Wright of Durham,† extended by Kant,‡ adopted and elaborated by Lambert and Michell, statistically investigated by both Herschels, is now discredited, if not definitively abandoned. The irresistible logic of facts no longer permits us to regard the Milky Way as a cloven disc of evenly distributed suns, apparently minute because indefinitely distant. Nor is it now possible to see in the nebular host an array of "island universes" studding the great ocean of space, similar to our galaxy in structure, and perhaps superior to it in splendor and extent. But it is easier to perceive the fallaciousness of the reasoning on which these views are founded, than to substitute for them a theory which shall at once accord with ascertained facts and appease our symmetrical instinct. It must, however, be remembered that the very completeness of a scheme argues its insufficiency, since the true creative plan can never be wholly divested of the difficulties and obscurities which beset a finite mind laboring in the track of an infinite

* Secchi, *Le Stelle*, pp. 121, 178.

* *Bulletins de l' Académie Royale de Belgique*, 1879. See *Nature*, vol. xx., p. 331.

† An Original Theory or New Hypothesis of the Universe, 1750.

‡ *Allgemeine Naturgeschichte*, 1755.

idea. We shall then content ourselves with laying down a few broad lines on which, it may confidently be asserted, our conception of the universe will henceforth be based, leaving details to the practical, and conjectures to the speculative in astronomy.

The first point clearly discernible is that the heavenly host are not constituted on a democratic principle of equality, but form a hierarchy, exhibiting infinite gradations of power, beauty, and splendor. This is demonstrably true of double and multiple stars, and is hardly less conspicuously evident in the case of groups united in a concurrence of motion. Such systems usually comprise individuals of every variety of apparent magnitude; but since their distances from each other almost certainly bear but a small proportion to their distance from us, we inevitably conclude (unless where the spectroscope shows unequal absorption) that their disparity in lustre is due to difference in size. Evidence of other kinds tends in the same direction. The movements of the stars must, on an average, appear greater for those that are nearer to the earth than for those that are more remote, both in so far as such seeming displacement is a perspective effect of the sun's progress through space, and in so far as it is caused by an actual translation of the stars themselves. But it is not found, on the whole, that the most brilliant orbs are the most mobile. On the contrary, many imposing luminaries, such as Canopus, Rigel, and Antares, are observed to be extremely sluggish in shifting their positions, while some insignificant stars dart through space with a velocity not only exceptional, but unaccountable.* The inference that brilliancy forms not even an approximate criterion of distance is confirmed by parallactic observations. As a general rule, the stars have no appreciable parallax — a statement implying the astounding fact that, seen from their remote stations, the enormous expanse of the terrestrial orbit shrinks to a point and vanishes from sight. In a few cases, however, a small annual displacement has been detected, and more or less reliably measured. It is true that a star of the first magnitude, *a* Centauri, heads the list by a large interval, and is hence regarded as our nearest neighbor in sidereal space, but the correspondence between vicinity and splendor goes no farther. Of the twenty-one stars believed to show some trace of parallactic displacement, eight only exceed the fourth, while thirteen range between the fourth and the eighth magnitudes.* Thus, 61 Cygni, a small star of the fifth magnitude, is considerably nearer the earth than Sirius, Vega, or Arcturus, and indefinitely nearer than Aldebaran, Regulus, or Spica. According to approved calculations, Sirius must (if his intrinsic splendor be the same) surpass our sun in volume from two to three thousand times; while 61 Cygni is unquestionably of far less size than the central orb of our system. Nor is there any reason to suppose Sirius one of the largest, or 61 Cygni one of the smallest, of the suns in space.

Until recently it was confidently held, in accordance with the view first proposed by Kant, that the galaxy with its myriads of suns formed but a subordinate member of the nebular system. We are now compelled to believe that nebulæ, in all their varieties, have their place and play their part within, not without, the galactic scheme. Of some of the arguments used on this subject by Mr. Proctor (whose collected essays on this and kindred subjects we have quoted at the head of this article) we now avail ourselves. These are concerned principally with the peculiarities of nebular distribution. If these bodies form an independent system or series of systems, their position in space must evidently be wholly irrespective of the internal architecture of the sidereal habitations. If, on the other hand, we perceive evident signs of such a connection, we are justified in assuming a fundamental unity of plan. Now it is impossible to avoid observing the existence of a marked relation, both of association and avoidance, between nebular and stellar aggregations. The great mass of the unresolved nebulæ (being four-fifths of the entire) congregate about the poles of the galactic zone, while a corresponding tract of almost total destitution runs parallel with that vast star-girdle both on its northern and on its southern sides. Two classes, however, of closely allied cosmical bodies obey a law of a totally opposite character. Gaseous nebulæ, or those giving a spectrum of bright lines, are found almost exclusively in the Milky Way and its immediate neighborhood, the same region concentrating in itself the

* The small star known as 1,830 Groombridge has a velocity (estimated at not less than two hundred miles a second) considerably greater than could be impressed upon it under the known conditions of the sidereal universe. Newcomb, Popular Astronomy, p. 505, note.

* Flammarion, *Comtes Rendus*, t. lxxxv., p. 783.

immense majority of those swarms of lucid points usually described as "star-clusters." Between these and unresolved nebulæ showing a stellar spectrum, it is not easy to draw an intelligible distinction. We can hardly escape the conclusion that differences, either of distance or of aggregation, alone distinguish them. Whether or not the external attraction exercised upon those found within the span of the Milky Way, constitutes in itself the physical cause of their more open formation and consequent resolvability (as Mr. Proctor inclines to think),* the fact is patent that the influence of that zone largely affects the distribution of all classes of nebulæ.

Still more convincing proof of the systemic unity of the stellar and nebular orders is, however, offered by a closer examination of the nebulæ themselves. We have not only the argument of continuity (which indeed may and often does prove delusive), urging the impossibility of separating by any clear line of demarcation groups obviously stellar from patches of unresolved luminosity, and the inconsistency of admitting one class of objects within the bounds of our firmament, while excluding the other; but also a visible intimate association of undoubted members of the sidereal system with the structure and position of the nebulæ. Thus, the sinuosities and convolutions of several of the "irregular" kind are followed with such unmistakable fidelity by knots and trains of minute stellar bodies projected on them as a background, that, in some cases, it seems as if the pattern, so to speak, of the nebula were pricked out with stars. We see, moreover, in the Magellanic Clouds — the wonder and the ornament of southern skies — a "glaring instance" of the truth we desire to enforce. The greater Nubecula, or White Ox of Abdurrahman Sufi,† seems expressly designed to exhibit the union into a single confederation of all orders of the visible universe. This cosmical "happy family" (if we may be allowed the expression) contains within its capacious bosom (extending over forty-two square degrees) two hundred and ninety-one nebulæ, gaseous and stellar, forty-six star-clusters of every degree of condensation, besides nearly six hundred individual stars of the seventh and eighth magnitudes.‡ It is entirely impossible to believe that this amazing assemblage is the result of accidental projection on the surface of the sky, and we have no alternative but to accept the conclusion that stars and nebulæ coexist in the same region of space, and form inseparable components of one vast system.

What then should be our general conception of that portion of the created world which we are permitted to contemplate? We find it stamped with the two great characters of unity and complexity — unity of design, bewildering and unfathomable complexity of detail. From the scattered "star-dust" just stippling with light the dark telescopic field, and the "star-seed," or "star-food" (in whichever aspect we choose to regard it), revealing in the spectroscope its surprising bright lines, to the royal procession of the Ursine orbs, and the solitary state of Arcturus and Vega, all that we see from pole to pole is bound together by mutual dependence, and unites to execute a single majestic scheme. Of the inner intricacies of that scheme we can form but a distant and inadequate idea. The galaxy, in its larger outlines, may be described as a congeries of stellar groups of every imaginable variety, arranged in an annular form. Our sun, with about four hundred stars, from the first to the seventh magnitudes, is believed to form an outlying cluster situated not in the circumference of the ring, but considerably removed from it towards the centre. Seen from some planet circling round a sun belonging to another similar firmament, the whole of these radiant orbs, separated from each other by distances entirely inconceivable to our minds, would appear but as one of the more prominent of the luminous nodosities that roughen the surface of the Milky Way.

All these separate systems — these starry commonwealths — are doubtless united in one grand federation, whose all but infinitely remote boundaries our imagination may indeed transcend, but our knowledge can most probably never pass. And as each terrestrial body politic is separated, by nature or by choice, into numberless associations, distinct in their aims and in their courses, so the nations of the sky are divided and organized into tribes, families, and households, various in their polity, harmonious in their action, united in their end. What may be the nature of the laws governing the relations, internal and external, of such systems, it would, in the present state of our knowledge, be the height of presumptuous folly to attempt even to surmise. We know,

* Monthly Notices, vol. xxix., p. 343.
† Cosmos, vol. iii., p. 122.
‡ Flammarion, *L'Univers Sidéral*, p. 818.

indeed, from the observed revolutions of binary stars, that gravitation acts in the same manner in sidereal regions as at the surface of the earth; but we do not know but that, at enormously increased intervals of space, it may be superseded by some higher and wider law, ruling higher and wider relations, just as gravity itself is replaced, at minute distances, by the action of molecular forces.

We must now pause. What we have said is indeed little and inadequate, but it is enough to show that the natural awe and delight with which we regard the stately pageant of the spheres are amply justified in the sublime realities represented by it. A scene is disclosed to our enquiries instinct with life, motion, and variety. Law, the evidence and the instrument of design, sits enthroned there, but presides over no dull or monotonous succession of events. Unexpected activities from time to time manifest themselves, and tremendous catastrophes disturb the serenity of the heavens. Some one of the obscure bodies which, for aught we know, may be as numerous as the lucid ones, suddenly assumes a vesture of light, and sends us, across an interval which costs its swift messenger perhaps a thousand years of travel, the first tidings of its existence. Luminous bodies, on the other hand, sink into obscurity and apparent annihilation. Nebular worlds, far surpassing in extent the entire ambit of the solar system, grow dim and vanish, like a pencil-mark rubbed with a touch from a sheet of paper, again as capriciously to reappear. Suns fade, century by century, like a field-flower held in a child's hand, while other suns grow and brighten, like rosebuds unfolding on their stems. Terrific conflagrations involving perhaps in destruction whole dependent schemes with their myriad possible inhabitants, desolate foredoomed orbs; while a large class of luminaries seem, by their periodical outbursts of volcanic fury, to be rendered unfit to act as the beneficent centres of planetary households. On all sides we see traces of activity and change; everywhere we find evidence of development and decay — decay, possibly a prelude to renovation, which again leads round to decay. For many and strange are the vicissitudes comprised within that stupendous cycle which bounds the existence of the heavens themselves, destined on the expiration of their appointed term, like the "frail and fading sphere" of the dewdrop to which Shelley compares them,

To tremble, gleam, and disappear.

From Temple Bar.

A LITTLE BOHEMIAN.

BY MRS. G. W. GODFREY.

PART III.

It is autumn again — late autumn — since November, though it treads so closely on the borders of winter, cannot fairly be reckoned as a winter month.

Summer has left scarce a remembrance of her bright presence behind. The last of the crimson-colored leaves that a while ago made the woods and the parks gayer than ever they were in their present spring dress are dropping from the boughs, soaked and dank with the chill, thick rain.

It is a small, fine rain that covers the earth as with a mist.

Daisy pressing her sleek brown head close against the window-panes in the library, which of all the rooms in the house commands the finest view of the undulating parkland and the river beyond, can scarce see, save in imagination, the place where she and her husband walked and talked on the night of Cecil Annesley's *fête*, two months before her marriage.

Annesley himself, stretched nearly full length in an easy chair before a blazing wood fire, finds the warmth none too great; so far are summer days but a thing of the past.

They are alone in the room — alone in the house. The few guests, chosen entirely from the ranks of Annesley's bachelor friends and former comrades, who were staying with them for the shooting, have long ago taken their departure to livelier scenes. And it is a big house — a fearfully big house, Annesley is beginning to think — for two people who have very few friends to invite into it, and have to find the best part of their amusement within its walls.

For half an hour or so they have scarcely exchanged a word.

Daisy, leaning in the embrasure of the old oak-framed window, seeming to look before her out into the dull November landscape, is in fact looking behind her.

She is counting up the days of her married life — a year and a week.

Not a year and a week of unalloyed happiness by any means. Who looking back can say unto themselves that even *one* year out of all the years that they have lived was wholly and perfectly happy? — and yet she can count amongst the days of them so many fair and pleasant ones that she in her humility holds herself more than ordinarily blessed.

Before her marriage, before Cecil Annesley chose her out of all women to be his wife, all the days of her life were so evil — so full of shame, of want, of fear of the morrow — that it seems to her, who has expected so little of life, that if even for a month, two months or three — she cannot count them out — she has been entirely content, with never a doubt of her husband's love, with never a fear that he seemed to be repenting of his choice, she has had more than her share of happiness.

And though in her heart of hearts she knows — cannot fail to know, even though she may not acknowledge it, even to herself — that this happiness is in some measure a thing of the past, she is not repining or lamenting over it.

Sorrow and trouble have been her companions, have walked with her hand in hand through so many years, that she looks upon them too much as familiar acquaintances to be greatly surprised at their reapproach.

A year and a week! A year and a week since they two set out hand in hand to brave the world. Annesley with a heart full of courage — with an absolute belief in the certainty of his own future happiness; she with some hope, and yet perhaps more love and patience.

"There is to be a fancy fair for the Dorcas Asylum at Dilchester, next month," says Annesley, breaking the silence, and laying down the local paper on his crossed legs. "It is to be held in the Assembly Rooms, and to be a grand affair. Almost every woman in the county has been asked to hold a stall — except you."

In those two words lies the secret of his discontent, the little rift within the lute which threatens to make the music of his life mute.

He cannot conceal from himself that all his fine policy, his best-laid schemes, have failed in gaining for Daisy the position she ought to hold.

The society of Creamshire has unmistakably turned the cold shoulder on the little Bohemian whom he has sought to thrust into their midst as one of themselves. It is willing enough to smile on him still, but it will not smile on his wife.

There has been some formal leaving of cards, a few ceremonious visits — so far has Lady Belminster's championship served them — but there has been no real friendliness of intercourse between him and his neighbors since his marriage. At the costly entertainments and dinners which he, seeking to propitiate them, has given one after another, the men have mustered in numbers, the women, the best of them, have been conspicuous by their absence.

Day by day, month by month, the truth has been thrust upon him. It is beyond denial. There is not a woman in all Creamshire, with the one exception of Lady Belminster, whom Daisy can call her friend.

If you had told him in those summer days, when he had been willing to turn his back upon all these people for Daisy's sake, how the turning of their backs upon him would have power to spoil his life, he would not have believed you. And yet it embitters his daily bread, it embitters his rising up and his lying down — worse still, it embitters his love for his wife. Sometimes he is almost angry with her that, except for his sake, she cares so little, is so content with him and his love and her quiet life; sometimes he could almost find it in his heart to wish that that very honesty and innocence which had won his love were less conspicuous in her, that she were more soft-spoken and plausible, better versed in the wiles that win their way in the world.

Things had gone better with them during the two months they had spent in London. People in town are too occupied with their own affairs, whether of business or pleasure, to trouble themselves very greatly with the affairs of other people. If a woman be pretty and charming, and the wife of a rich man, they do not care very much about her pedigree or make her bear the burden of her father's sins.

It is only here, in Creamshire, that they will never forget that she is the daughter of Captain Trevor Browne.

And it seems to Annesley that, though he has done his best to sink Captain Trevor Browne into oblivion, having made it worth his while to go abroad and stay abroad, his name is forever rising to the surface.

There is scarcely a tradesman in Dilchester who is not, or who does not profess to be, the worse for dealings with him. All manner of disreputable people are forever claiming acquaintance with him on the strength of their acquaintance with his father-in-law. But for the dislike to being beaten off his own ground inherent in every man, he would leave the place that was his father's, and his father's father's before him, sell it to strangers and go somewhere where a man may

be allowed to be happy in his own way, and to choose his wife according to his own ideas, not according to his neighbors'.

Almost he has been brought to confess to himself that he shall be driven to it at last; but it is hard upon him, — undoubtedly hard; and having passed that preliminary stage of married life when a man conceals his annoyance rather than vex his wife, he lets his sense of that hardness be shown very unmistakably.

The very strength of his love for her, the very absoluteness of his belief in her innocence and purity, make the bitterness of his revolt against the injustice of a world which places a social ban upon her, while it admits others whose very follies has made them fashionable, the greater, and unjustly, but inevitably, helps to sour his manner to her.

She leaves her place by the window as he speaks, and, crossing the room, comes over to the fireplace.

"Is there any reason they *should* ask me?" she says quietly, answering him.

"Is there any reason they should not?" (not so quietly).

"I do not know" (smiling); "I only know there can be no great pleasure in standing for hours behind a stall as an amateur shopkeeper. On the whole I am glad that they have forgotten me this time."

"You are always glad to be forgotten, always willing to be thrust into the background," he says irritably.

"Much more willing than to be thrust into the foreground — if I am not wanted there," she answers with some spirit.

"Why should you not be wanted?" (looking up at her).

Even then, in spite of his irritation, he cannot but own to himself that she is good to look at. A little paler perhaps than she used to be, over-pale to eyes tender enough to be anxious, and with something of the old childish innocence and fearlessness gone from her face, but with a new gravity, a touch of stateliness, that do not ill replace them.

Certainly she is a woman who ought to be wanted anywhere.

"Because *you* wanted me," she says smiling — if she feels any annoyance at the subject, or at his tone, she does not show it — "you must not quarrel with all the world for not sharing your opinion."

He does not answer. He throws down the county paper as if he had had enough, and more than enough of it; and he takes up the *Universe*, a weekly journal that treats of the fashionable world and the things thereof.

In his bachelor days, Annesley had rather hated society — so called. He had imagined himself to be something of a Bohemian. He had certainly preferred those amusements which had no taint of fashion about them. He was not one of those men who find it exciting to spend their mornings in the Park, their evenings at dinners and balls.

But marriage has changed all that. The very fact that he cannot altogether command society as he would wish to do, gives it an importance that in his eyes it never had before.

Week by week he scans this paper, as eagerly as Lady Belminster herself, to see what the world, which seems in some measure to have given him up, is saying and doing.

And Daisy seats herself opposite to him in the chair that in the early days of their married life was brought in here, and put near his, so that even when he was obliged to be busy she should not be far off, and takes up her crewels from the little table near by. In those days the crewels did not get much attention, in these the work gets more quickly done.

The silence is broken by an ejaculation from Annesley, sufficiently strong to make Daisy look up.

"Listen! this is the sort of woman people run after nowadays! 'It is difficult to decide between the claims of the rival beauties at the princess's ball last night. For my own part, I should be inclined to give the palm to Mrs. Damer. She wore white velvet, embroidered with seed-pearls, and carried the famous fan with her monogram in diamonds. She was certainly looking her very prettiest.'"

"Well!" says Daisy, seeing she is expected to say something, "who is she?"

"Who is she? you do not know? Decidedly, you could not have kept your ears open when we were in London. She" (with a little smile) "is the wife of a Mr. Damer, who has seven hundred a year at the outside. She has a house in Park Lane, a couple of carriages, a couple of riding-horses, an opera box, dresses by Worth, and diamonds."

"Lucky woman! Some one has left her a fortune, I suppose," says Daisy, trying to feel interested.

He looks at her for a moment to see if she is serious, and then he takes up the paper again.

"They are right," he says drily. "You are not at all fashionable."

By-and-by another exclamation from behind the paper, but it is of an altogether different character from the last. Daisy looking up sees her husband's face a great deal brighter than she is accustomed to see it when he is reading the *Universe*.

"By Jove! good luck at last!" he says cheerfully; "at least there'll be *one* decent fellow in the county. Listen, Daisy, Charteris is married, and is coming here."

And he reads again one of those paragraphs written in that tone of pleasant, bantering familiarity which shows the writer's intimate acquaintance with every one in society — from the queen downwards.

"'Colonel Charteris was married at Nice on the 20th. Poor old Jack! How well I remember him with the York and Ainsty. A straighter goer never sat in saddle. It is some years since he sold out, but the —th still speak of him with regret as the strictest of disciplinarians but the best of comrades. His little bride is a good deal younger than himself — the third daughter of Sir Charles Manners, and to my mind quite the prettiest of all the six. I hear that Lord Hazlewood, Colonel Charteris's brother, has lent them one, and to my thinking the most beautifully situated, of his many houses — Coombe Royal, Creamshire, and that after the honeymoon, which will be spent in Rome, the happy pair will take up their residence there. It is said that Lord Hazlewood is coming to England for the first time for many years to receive them at his house, or to pay them a visit while there.'

"'By-the-bye, I have not heard much of Lord Hazlewood of late. A good many years ago — more than I care to count — Paris was full of his wild escapades. It is about time that he followed his brother's example — took unto himself a wife, and settled down as a country gentleman.'"

"Jack married!" he cries, throwing down the paper and rising from his chair with an air of exhilaration — very unlike his ordinary air on wet mornings. "Jack coming here — to Coombe Royal! There could not be better news for you and for me, Daisy. To think of my not hearing of it — that comes of living in a dead-alive hole like this."

"And who is Jack?" says Daisy, altogether puzzled. "And what is he to you or to me?"

"You have never heard of Jack — Jack Charteris?" looking at her as if he is surprised at her ignorance. "Why, we were chums, he and I, from the time we were short-coated, played together when we wore knickerbockers, went to Harrow together, and were in the same regiment. He was a little bit of a prig, was master Jack; but, after all, the best fellow in the world — an awfully good fellow!"

"Then he must be very unlike his brother, according to all accounts."

"What do *you* know of his brother?" (a little sharply).

"I only know what people about here say of him. I have sometimes thought" (with a touch of unconscious cynicism) "there must be some good in him, they all speak so badly of him."

"Then you are wrong. There is nothing that they can say of him that is too bad. I should have thought" (scornfully) "that women could find something better to gossip about than a man like that. I don't doubt that they would all run after him if he came down here, but they ought to be ashamed of themselves if they did. *You* should not know him."

Daisy smiles to herself, but she does not say what she thinks.

"At any rate he must be generous," is all she says, "or he would not lend his brother his house."

"A poor sort of generosity," says Annesley, "to give a thing that he will not use himself. He has scarcely been near the place since his father died. The air of Creamshire is too virtuous for him."

Daisy thinks, "I wonder what he has done." But she does not ask. She knows that it is the custom for most men who are husbands to think that the vices which are almost permissible in a man, must not be spoken about by a woman.

"Altogether," says Annesley cheerfully, walking up and down with his hands in his pockets, "it is about the best thing that could have happened for Charteris to have Coombe Royal. It will open one of the best houses in the county, and it will introduce some new blood into us. We were getting horribly flat." Then he stops by his wife's chair, and, bending down, kisses her pretty, sleek head. "Little Mary Manners, Charteris's wife, is one of the best little girls in the world. I know her quite well. I met her at Spa when she was just out. She is not old and prim and soured like all the women here. You and she will be great friends, and it will make all the difference in the world to us."

But Daisy's heart sinks low. She knows better — a great deal better than he does — that the women who are young

and innocent and well-placed in the world's esteem, are not always so ready to take the part of those who are equally young and innocent and not so well-placed.

With too sure a knowledge, she reckons up the chances for and against this woman's being her friend, and she knows they are against it.

She looks up at her husband's face, and sees the new brightness there, and she cannot answer him — she cannot smile back to him. She knows that if this hope fails him, it will be worse for him — far worse than ever it was before. She feels almost sick with fear, and yet she cannot find it in her heart to throw cold water on the cheerfulness that has been so rare with him of late.

"Do not be too sure," is all she says, half jestingly. "She and I may not get on. I may not like her, or — more probable still — she may not like me."

But Annesley, always too ready to hope, equally ready when anything goes amiss to despair, will not be daunted.

"Nonsense," he says decidedly. "You are sure to get on. Why should you not?"

Then, pacing restlessly up and down, he stops by the window, and looks across in the direction of Coombe Royal.

"They will be getting the house ready, I suppose. It has hardly been used for ten years or more — a horrible shame, for it is the best house, and they have the finest pictures, in the county."

Daisy raises her head.

"Pictures?" she says, with some interest.

"Do you mean" (turning round and looking at her) "that you have never seen them? I thought that every one in Creamshire knew the Coombe Royal picture-gallery. It is a show place, open two days a week."

"I am not of Creamshire," she says, a little coldly, or a little sadly — he cannot tell which.

"Well, at any rate, you shall see the pictures," he says kindly. "It is not a show day; but they have the same old housekeeper who used to give me bread and jam when I was a child. If it clears up I will drive you over, and we can find out when Charteris is expected."

. . . . . .

Towards afternoon the sky does clear, and though the raindrops still hang thickly and plentifully on the leafless boughs of hedges and trees, the dense mist of clouds that all the morning hung over the earth has broken, and there is as much of brightness in the afternoon as may fairly be expected in late November.

Annesley, driving through the fresh, damp air, behind a pair of fast-trotting horses, is an altogether different man to the Annesley who sat brooding over the fire in the morning.

"The world would not be a bad place but for the people in it," he says, looking at his pretty wife and smiling contentedly.

He is as susceptible to external influences as a child, and the smallest thing can change his mood. Daisy is beginning to understand that a great deal better than she did a year ago.

Half-way to Coombe Royal they meet a carriage with a pair of showy, high-stepping ponies, driven by a showy, high-colored lady with a man lounging by her side.

The men exchange nods that are friendly enough, but Daisy pays back a bow that is so small and so cold that it is almost left to the imagination, with one that is equally small and cold.

"Mrs. Granville Grahame," says Annesley savagely, whipping up his young horses with an injustice they are quick to resent. "A daughter of a Bond Street shopkeeper, with a fortune of £90,000. Great heavens! what are we coming to when such people as these give themselves airs?"

He has learnt to measure the scale of bows as accurately as a woman trying to push her way socially upwards. He knows the minimum to which a bow can be reduced, and that Mrs. Granville Grahame's nearly arrived at it.

"Are we not a nation of shopkeepers?" says Daisy, envying in her heart any woman of whose father people cannot at any rate say anything that is bad.

"A nation of snobs!" he answers, sending his horses along at a rate that would make a nervous woman shiver.

And Daisy sits silent. Dull as it may be at home, it seems to her it would be better to stay there forever, since they can never come out without encountering some such petty slight as this. Almost she tells herself, she will make some excuse, feign some illness, to keep her always within their own gates rather than see him day after day so vexed.

But at Coombe Royal, raking up childish memories, talking and joking with the old housekeeper, he forgets his annoyance, at any rate for a time.

The pictures are good enough to have fairly earned their fame.

Daisy, who has seen many picture-galleries in many lands — it being one of the few advantages of a life like Captain Trevor Browne's to be driven from place to place as each becomes too hot to hold you — knows enough of art to understand that there are some here that would not find themselves out of place in the finest collection that the world can boast.

The Charterises have always been lavish with their money, and have always had plenty to be lavish with. It is evident that some of Lord Hazlewood's predecessors have thought theirs better spent on pictures — which he has left to rot upon his walls — rather than on the dissolute men and more dissolute women with whom he is said to pass his life.

"We have tried to keep the fires up," says the old housekeeper, who looks upon these pictures as her children, having acted as their show-woman for the last twenty years. "But it's hard to keep the dust and damp out, when a house is not used for so long."

She is better than any printed catalogue. She goes through the story of them in the monotonous recitative of one who knows her part so well that she could say it in her sleep — and probably in the very same words that she has repeated it twice a week for twenty years.

Daisy, following her, listens with the deepest interest, as she shows the portraits of the Charterises, and tells the stories of the Charterises — good and bad. On the whole, the balance decidedly inclines to the bad.

The first Raymond Charteris, created Baron of Hazlewood in the time of King John, seems to have gained his title and his lands by the sort of escapade that in a more enlightened age would probably have gained for him nothing better than a rope round his neck. And though there have been intervals of good Charterises — so good that even the housekeeper, who is not without graphic instinct, cannot make their stories interesting — the bad blood seems to have broken out here and there, notably in this last Raymond Charteris, Lord Hazlewood. In her heart of hearts Daisy feels an undefined interest in this man, of whom she knows nothing but that no one has a good word to say for him.

"He and I ought to have something in common," she thinks to herself with a bitterness that through all the hardness of her life she has never learned till now. "We are the two *bêtes noires* of Creamshire."

But though they have come nearly to the end of the pictures they have come to no portrait of him either as a child or man. Though the housekeeper has had plenty to say of the sins and virtues of his predecessors, she has not had one word — either good or bad — to say of her master.

"So there is no portrait of the present Lord Hazlewood," asks Daisy at last; but, as she speaks, the words die on her lips. "Who — who is that?" she stammers suddenly, pointing to a picture that hangs in a corner of the gallery, a corner that may command a good enough light on a summer's day, but on this dull November afternoon is almost lost in the shadows.

"Henry Raymond Willoughby Charteris, the present Lord Hazlewood, painted by Millais, in the uniform of an officer in the Guards, in the year 1852," says the old woman in her catalogue voice.

"Not that — not that!" cries Daisy excitedly, pointing with uplifted hand. "I mean the man in front of us, the man with dark eyes, smiling a little — see!"

They both of them follow her finger — they both of them, Annesley and the housekeeper, see the face of Lord Hazlewood as they knew it twenty years ago.

"That is my lord's portrait," repeats the woman a little coldly — she does not understand excitement in ladies — "painted when he was a young man. It is the only one in the gallery."

But Annesley looks from the picture to his wife, and he sees that her hand is trembling with excitement, and that her face is white and her eyes dazed and wild as the eyes of one who looks upon some strange and startling apparition.

"What is the matter with you, Daisy? What has frightened you?" he asks sharply, with a vague sense of distrust that is near to anger.

She drops back a pace or two, and her hand falls to her side.

"It is so like — so very like — some one I once knew," she says with a little nervous laugh, catching her breath as if speech were for the moment difficult to her. "It is foolish, is it not" (looking up at him) "to be startled by a likeness that one does not expect and one that is only a fancy, that *can* be only a fancy?"

There is a sort of appeal in her look, in her words.

Somehow or other her eyes remind Annesley of the eyes of a stag hard pressed for his life.

"Very foolish;" he says gravely, looking at her.

"One is so apt to fancy likenesses," she goes on a little hurriedly, almost apologetically; "but if you had not told me *that*" (indicating the picture) "was Lord Hazlewood, and if I had not been sure, quite sure that I had never seen him in my life, I could have been equally sure that I knew his face."

"You have made a mistake," says Annesley (his tone says "a very foolish one") — "the effects of the shadows, probably. Come, we had better be going. It is getting dark, and we shall be belated."

"It *is* dark. I have been so interested, I have forgotten all about the time," says Daisy, with a smile that ought to propitiate the hard-featured housekeeper, if it does not.

But as she turns her back to the picture she shivers, and the woman notices it.

. . . . . .

Half-way home, Annesley, breaking a long silence, turns suddenly to his wife.

"Of whom did that portrait remind you, Daisy?" he asks abruptly.

Almost without knowing it he is prepared for some hesitation in her answer; but he detects none.

"Of a man my father knew abroad. I do not know that I ought to call him a friend. He was — like all the rest."

"That is ——"

"He smoked and drank, and played cards and betted with him."

"And where was this?"

"It was at Boulogne I knew him. I think my father had known him in Paris."

"And his name?"

He is a little surprised that she does not resent his catechism, but she shows no signs of doing so.

"I always heard him called Somers — sometimes Captain Somers" (knitting her brows with a little puzzled look).

"What made you fancy he was like Hazlewood?" says Annesley again.

"He *was* like" (very decidedly); "a great deal older, with grey hair, and yet like — *very* like."

There is a little silence then.

"And was this man your father's friend, or, if one may be permitted to ask" (cutting his whip in the air), "*your* friend?"

For the first time she hesitates a little.

"I think that he was always kind to me," she says slowly.

"That means" (very quickly) "that he was your lover?"

There is no hesitation this time.

"No, it does not mean that. He was never that. I am absolutely certain" (most emphatically) "that he never even thought of such a thing."

It is impossible to doubt that she is telling the truth, and Annesley does not doubt it. Whatever vague fears he may have had are absolutely set at rest.

It occurs to him that the man whom Daisy has known might have been Lord Hazlewood under one of the names he is said to have assumed for his pleasure — or his folly. No more likely companion for Captain Trevor Browne. If so, it may be a disagreeable complication should he come to Coombe Royal. But the idea is too vague to trouble him for more than a moment. And the certainty that his friend Charteris is coming to settle down so near him, is a tonic strong enough to dispel, for the time being, the depression and gloomy forebodings that have of late been too familiar with him.

That night and for many days to come he is in wonderfully good spirits. He is more like the lover of a year ago than the husband of these later days.

But Daisy, if he had eyes to see it, is very quiet and still.

. . . . . .

Three weeks later Daisy stands before her glass dressing herself to go with her husband to the fancy bazaar that has been the talk of Creamshire for many weeks past.

With all her might she has fought against going — that is with all the little might that love has left her. She has never been very strong to resist Cecil Annesley's wishes since the days when she fell in love with him — a year and a half ago. Only a year and a half, though it seems so long — so very long.

She has always yielded to him, sooner or later — just because she loves him so — and she yields now, even though she knows it would be better for him — and better, a thousand times better for her — if she could stay away.

She has been through this sort of ordeal a great many times before. She has been to every *fête*, and ball, and public gathering in the county for months past. To stay away from any one of them would have seemed to Annesley an acknowledgment of these people's power to drive his wife from their midst — to go to each one the only defiance of them possible to him. And she can estimate to a detail what she will have to endure: a little patronizing from Lady Belminster, and a few of those

who follow undeviatingly in her footsteps; a few bows — so cold that they will be veiled insults — from those whose sense of justice will not permit them to punish a woman for having a disreputable father by cutting her altogether; some smiles from those so low in the world, so vulgar, or so socially ostracized that their smiles are more damning than other women's frowns; and absolute ignoring from the majority. She could bear it all. Has she not borne it a hundred times before? But to-day — almost it seems to her that the slights and the frowns of the women from whom she has learned to hope nothing, will be as nothing to her if only the woman from whom her husband hopes so much will but smile on her.

She was always brave before — always brave and full of hope even when the world dealt its hardest blows at her; but to-day her heart beats with a sickening fear.

Two days ago Colonel Charteris and his wife arrived at Coombe Royal, and to-day, so it is said, they are to make their first appearance in the county at the bazaar. To-day it will be proved whether Annesley did well to hope, or whether he is doomed to most bitter disappointment.

She does not know why she so greatly dreads this meeting — perhaps because her husband has built so much upon the coming of his old friend, and she, with bitter knowledge of the world's hard lessons, knows that they who hope the most suffer the most — and yet she is filled with so great a foreboding that as she stands there dressing it seems to her almost that the end of all her trials, all her struggles, all her patience, has come at last, and that even at her happiest she must somehow have foreseen this day.

And yet she dresses herself with care. She puts on the clothes which she fancies become her most. If beauty be a weapon to use in her own favor, she will use it to the utmost. Without any doubt the face that she sees in the glass is the loveliest, the sables that she wears — the gift of her husband — are the handsomest, of any woman's in the county.

Perhaps for both these things the other women find it harder, not easier, to forgive the sins and social shortcomings of her father. But she is generous herself, and she cannot understand that.

Her husband, coming in a minute or two later, stands looking at her critically and admiringly. Eyes and mouth are a great deal graver and more sorrowful than the eyes and mouth of the young girl who had dressed herself in her cheap white gown to go to Lady Belminster's garden party a year and a half ago. But he does not see that. He has perhaps grown used to the change. He only sees that she is very beautiful, and some of the old pride of possession, the lover-like tenderness of manner, that have been obliterated, or, at any rate, thrust into the background by the troubles and annoyances of the past months, stir in him afresh.

"My darling, you look lovely!" he says, kissing her on the forehead — "lovely enough to excuse a man for the height of folly."

He means it in all tenderness, but Daisy winces. To her it seems like the speech of a man who having bought a vase or a picture at an exorbitant price, wishes to find excuse for his extravagance in the beauty of that which he has purchased.

To her it sounds as though he were thinking to himself, "Charteris will understand how it was I married out of my own set when he sees her."

Then at the last moment she tries for the last time to get out of going.

"Cecil," she says pleadingly, laying her hand on his, "give me my way for this once: I do not want to go to-day — let me stay at home."

"Nonsense," he says quickly. "Why should you not want to go?"

A less honest woman would make some excuse — she makes none. She tells the truth.

"It seems to me that if you build much upon the friendship of this man and his wife, it will be better for me to meet them anywhere rather than in the midst of all these people who do not like me," she says earnestly.

His face flushes.

"That is ridiculous. Every one in the county will be there, and I choose that you shall be among them."

"But if," she persists, holding his hand to detain him — "if it should turn out" (hesitatingly) "that Lord Hazlewood is the man my father and I knew, and if he should be there ——"

"What then?" he asks sharply, annoyed by her persistence. "Is there anything he can tell them that they do not know already?"

She drops his hand.

"That is true," she says quietly and very sadly. But she makes no more objections, and so they go.

. . . . . .

The Assembly Rooms — not very large

ones — are thronged. The townspeople and all those unhappy and unclassified ones who cannot reckon themselves among the select and sacred society of Creamshire, have not allowed so good an opportunity of being for once in their lives "hail fellow well met" with the county people to pass without availing themselves of it to the utmost.

For Mrs. Jones, the draper's wife, to be able to boast that she bought a silk pincushion at twenty times its value from the Countess of Belminster — for Mrs. Smith, the cheesemongeress, to be able to show a photograph of Lady Eleanor Gore-Layton, signed with her own hand, are occasions that do not occur twice in a lifetime.

For the time being the lines that divide one set from another, hard and fast though they be, are broken down. Cliques and sets, etiquette and formality, are forgotten — or, more strictly speaking, deliberately laid aside to be as deliberately taken up again the moment the bazaar closes.

The tables are turned. It is the countesses and ladies and grand county people who are imploring, and importuning, and forcing their wares on any one who will have them; the townspeople and visitors, and second-rate county people are for once in their lives in the position of patronizers instead of patronized.

And they are making the most of it, even though it costs them dear.

But in the midst of the throng and the bustle, the noise and the confusion, Daisy is alone. Women stare at her; they measure her from head to foot, from the length of her eyelashes to the length of the sable tails at the skirt of her cloak — but she is not one of them, neither of the visitors nor of the county people.

Annesley being the man, and therefore more easily pillaged, is besieged right and left, even by the people who have looked coldly on him since his marriage, and have every intention of looking coldly on him again to-morrow. But Daisy, having left all the buying to him, is allowed to pass unnoticed, and follows as well as she can in his wake.

"You had better stay near Lady Belminster," says Annesley, finding she is getting pushed about.

But Lady Belminster is in the thick of it. She and her niece in the shabbiest of old gowns are selling pincushions, spectacle-cases, and babies' socks, and all manner of valueless things at fabulous prices, while Mrs. Golding, the millionaire's wife, in the most gorgeous array, stands before her stall of costly toys almost unpatronized. She is not a celebrity like Lady Belminster.

"As pretty as ever, I see," she says with a nod to Daisy. "You will cut out the little bride! Quite plain, I hear — never was a good-looking Manners yet. To think of a Charteris marrying such a little fright! They say that Manners made the man — caught the colonel and wouldn't let him go — eh! They'll be here directly. Ta ta! See you again!"

So Daisy is dismissed — Annesley has been borne off to the other end of the room where a raffle is going on, and she is alone. She tries to stand as much out of the crowd as is possible, she tries to look unconscious of the many stares that are directed at her; but the sense of loneliness, the heat and oppression are almost too much, even for her courage.

Some one catching sight of her guesses a little of what she is suffering, and being a man, and kindhearted, takes pity on her.

"You look tired, Mrs. Annesley," he says, going up to her. "I wish I could get you a seat, but I am afraid that is impossible."

"I *am* tired, Colonel Drummond," she answers, taking his hand and smiling up at him with a sense of gratitude that is almost ridiculous. She knows that his wife hates her, and that it is from pure kindness that he has spoken to her. "And I have lost my husband." Something in her face touches him, and he makes up his mind that he will stay with her until Annesley returns.

"Have you seen the bride?" he asks. "They came about ten minutes ago. She is a plain little thing, but she looks good."

Daisy's heart seems to stand still. They have come then. And she will see them. It is only a question of minutes now.

"It will be a good thing for the county to have some one at Coombe Royal," he goes on conversationally. "Charteris is an old friend of your husband, I think, in the —th, was he not?"

Daisy answers mechanically. In his heart, Colonel Drummond thinks she is as stupid as she is pretty, but he does not desert her.

"Look, they are coming this way," he says presently. "That is Charteris — fellow with the broad shoulders and brown beard. That is his wife — little fair girl, by Jove! — talking to your husband. They are coming here, they are looking for you."

Yes, they are looking for her. In a moment she realizes it. But she does not take one step forward — somehow she cannot.

"Daisy," says Annesley, pushing his way through the crowd, his handsome face alight with excitement and pleasure, "this is Mrs. Charteris — I have brought her to introduce her to you. Mrs. Charteris, my wife."

The little bride, a gentle-looking little creature, holds out her hand, and smiles up into Daisy's face. All the days of her life she will never forget that face.

"Jack!" says Annesley, to a man who by reason of the crowd has been left a little in the rear, "this is my wife."

"I am delighted," begins Colonel Charteris — but the words die on his lips. His face, smiling a moment ago, seems to freeze into a look of horrified recognition. The hand that is outstretched to Daisy's never reaches her, instead it is laid peremptorily on his wife's arm.

"Come," he says shortly; and in a moment he has taken her away and the crowd has separated them.

It is all the work of a second, and for that one second Annesley stands as a man who has been shot will stand before he falls, — his face, his very lips, blanched a ghastly pallor. Then he makes a spring forward, and tries to reach Colonel Charteris.

"Good heavens, are you mad!" says Colonel Drummond, laying his hand on him and forcibly holding him. "If — if he has insulted you, have it out somewhere else, not here. Think of your wife."

Annesley turns round, and with a look on his face that they who see it will never forget, gives his arm to Daisy.

"You are right," he says with a sort of smile. "I will take her away. Charteris can wait."

Neither of them could tell how they got through the room, through the gaping, staring, whispering crowd, but even the women who have been most cruel to Daisy, who have insulted her with coldness and slights, pity her. She turns her head neither to right nor left, but in her dazed, scared eyes is the look of one who has got her deathblow. In absolute silence, Annesley takes her to the door, helps her into the carriage, and shuts the door.

Then for the first time she understands that he is not coming with her, and she springs up, and seizes his hand.

"Cecil, Cecil!" she whispers in an agony. "Come with me! For God's sake, come with me, and hear me!"

But he drops her hand, signs to the man to drive on, and she is borne away without the chance of speaking a word.

Then Annesley goes back, and beckons to a man who is loitering about.

"Go into the ball-room, and find Colonel Charteris; and tell him that I am waiting to speak to him here."

As he speaks he points to a small inner room, used on ball nights as a cloak-room, absolutely unoccupied now.

And having given the message, he goes in there and waits.

. . . . . .

And in the library — the room to which she knows her husband is most likely to come on his return — Daisy sits waiting.

She has not unfastened her furs; she has not moved hand or foot since she came in there; she has only sat with her eyes fixed on the clock — waiting.

She has not cried or wept. She has scarcely seemed to herself even to think or feel. There are agonies of suspense in which thought and feeling lie stunned — all but dead — absorbed in one great breathless *waiting*, a waiting that is more unendurable than the cruelest sorrow.

The clock's lagging hands have counted out but thirty minutes since she sat there, when she hears wheels drive up to the front door; hears her husband's footsteps in the hall, his hand upon the door. But still she does not move — she cannot; she waits until the door opens, until she can see his face, and then she looks — and knows the worst, the very worst, that she has dreaded, has come to her.

The lethargy of sorrow that was upon her but a moment ago is broken as though he had struck her a blow.

She starts up with a great cry, and goes to him with stretched-out hands.

"Cecil, let me speak to you, before you tell me what that man said to you. Let me tell you — I ought to have told you before I married you. I was wrong; but I thought it could never matter ——"

He looks into her face for a moment without a word, and then he flings her hands away, and going to the table, seats himself there, and buries his face in his folded arms, out of sight of her.

For a moment she stands as one stricken, and then her face hardens.

"Since you will not hear me," she says, quite quietly and coldly, in a voice that has somehow hardened too, "at least tell me of what I am accused. In bare justice I must demand that."

He raises his head then, and all the misery and shame that he has endured during the last hour break out into bitter passion.

"Do you not know? Are you shameless quite? Do you need that I should tell you?"

She cannot speak; she only makes a sign to him to go on.

"It is not much — but it is enough," he says, with a most bitter scorn. "He would not have told me at all — I do him that justice — but that I forced him. Six years ago or more, so he says, he, going late at night to the Hôtel des Bains at Boulogne, heard by chance that his brother was there; and going to his room unannounced, found him supping with a woman — a child almost — *you!* Daisy, Daisy" (breaking off, and changing from anger to a most passionate entreaty), "tell me — for God's sake — tell me it is not true! I will believe you against him — I will believe you against all the world!"

But she stands dumb, and her face, white before, grows livid as the face of one on whom the shadow of death has fallen.

He looks at her for a moment in mute horror. In spite of himself, in spite of all the evidence of his senses, he must have had some hope until now. But now — he drops his face upon his hands again without a word.

For the space of a minute there is utter silence. Then she comes forward a pace or two, and leans heavily on the table.

"It is true," she says, panting a little, as though her breath came hard and fast. "I was there; but" (lifting her poor, dim eyes upwards) "as truly as God lives — as surely as he will have some pity on a poor girl who did no wrong, meant no wrong — I was there in all innocence. I did no harm, and thought no harm. Listen! Six years and a half ago my father got into some gambling quarrel at Boulogne. One night the gendarmes took him; the next day the people at the lodgings to whom we owed more, far more, than we could pay, seized everything we had, and turned me into the street — literally turned me into the street. Can you understand that? I should have *starved*," she goes on, raising her voice in her excitement. "I *was* starving, famished with cold and hunger, when the man whom they called Captain Somers met me, took me to his hotel and fed me, and the next day, at infinite trouble to himself, took me to England, and left me with people who took care of me till my father could come to me.

"It was *then* that woman, Mrs. Drummond, saw me — it was to save me from her, or such as her, he tried to keep the carriage to ourselves by telling the guard we were a newly married couple. But they have hunted me down — even then, that day of your party, do you remember it? — I knew that sooner or later — sooner or later — they would hunt me down."

He does not speak, does not lift his head.

"You call him a bad man," she goes on, her voice trembling; "but to me he was always good, nothing but good. Later on" (for the first time faltering and flushing) "when my father came to me, he told me what men said of him, and that if ever it came to be known that I had been at his hotel that night, they would believe evil of me. He forbade me to speak of it. I know that I did wrong to hide it from you — most wrong. Cecil!" (stretching out her hands with a bitter cry), "dear love, dear love, forgive me!"

But he does not answer; he does not move or speak.

"Do you remember," she goes on, the tears raining down her poor white cheeks, "how once I told you that if ever it should come to pass that you should be *ashamed* of me, I should wish that I were dead. I *have* brought shame on you. I do wish that I were dead — with all my heart I wish it, if that could bring you more happiness than I have ever brought to you. Yet Cecil, darling" (falling on her knees by his side, and stretching out quivering, imploring hands to him), "tell me once — only once — that you forgive me — that you believe me."

Silence — dead silence.

Then she draws herself up and stands erect, with her hands clasped against her breast.

"Do you mean" (very slowly) "that you do not believe me?"

Still he does not answer.

In the silence that follows they can hear the ticking of the clock, the sudden patter of the rain against the darkening window-panes.

Then again she speaks, and her voice is horribly changed, cracked and strained like the voice of an old woman.

"Answer me! Do you believe that I have told you the truth? Yes or no."

Then he lifts his head. His eyes are fierce and bloodshot, and the veins on his

forehead are swollen as of one in great agony.

"No," he answers with bitter passion, "I do not believe you. I should be a fool if I did. Go!"

And she goes.

. . . . . .

And the night draws on. The early darkness of a winter evening falls about him as he sits there.

Great masses of storm-clouds are driven by the rising wind across the darkening sky, giving now and again a glimpse of the moon's face as in a sea of blackness; the raindrops beat against the window-panes in sudden gusts; and down by the swollen river the voice of the wind wails and cries, rising and falling as the voice of one in mortal pain.

Later on, a servant bringing in the lamp finds his master still there, asleep as he supposes, and leaving the light, steps softly out again. He is perfectly conscious that something is amiss, but for all that he sounds the gong that marks the half-hour before dinner as loudly and as punctually as though the big, empty house were full of hungry guests.

But even that familiar sound, reminder of the necessity to keep up appearances even though one's heart be broken, one's honor laid in the dust, does not rouse him.

He sits there still, just as Daisy left him, in a torpor of misery, and shame, and most bitter disappointment.

But he is roused at last and effectually.

He hears a sound of horses' feet galloping up the avenue, an imperious ring at the door, an imperious voice in the hall.

"I tell you I must see him," this voice says. "No name, no name — I will announce myself. In here, do you say?"

The door is burst open, is carefully closed again, and Annesley, raising his face, haggard, dishevelled, with the marks of the misery of those past hours written so plainly on it that all who see can read, finds himself face to face with Lord Hazlewood.

For a moment he does not recognize him. The ten years that have passed since he has seen this man have added twenty to his appearance. But when he understands who it is that has forced his way in upon him the dull misery in his eyes quickens to fierce passion.

Lord Hazlewood, seeing it, drops the hand he has outstretched to him.

"I see," he says, with a little smile. "You are right not to shake hands with me until you have heard. That confounded priggish brother of mine has, I hear, made a mess of things as usual, and I could not rest until I had ridden over to set them right — stop!" (as Annesley tries to speak). "Do not say a word, *of your wife*, until you hear me."

Then he drops his tone of cynical lightness, and tells his story, much as Daisy had told it, and Annesley listens, with folded arms and knitted brows.

"That is all," he says when he has finished. "No doubt I was a fool to do the child a kindness, to feed and house her when she was well-nigh starving — a fool not to understand what other fools, like my brother, would think of such kindness; but upon my soul I didn't. She was the best little girl in the world; but, only a little girl, to me."

Annesley, with head sunk on his breast, does not speak — probably cannot speak. Lord Hazlewood begins to feel a little bit angry.

"No doubt," he says, resuming his usual light tone, "your wife has already told you all about it. I might have spared myself the trouble of coming over, but I wanted to save you any possible bother. Now I will wish you good evening."

"Stop!" cries Annesley with unrestrainable passion. "Suppose that I believe you — that this is true — will you tell me what is to atone to my wife for the insult that has been publicly put upon her to-day? Do you know" (his voice rising with every word) "that there is scarce a woman in this place who thinks her good enough to speak to already, and that now — now that you and yours have insulted her — she will be put under a ban, shunned like a pariah? Do you know what it is to live in your own place and not be able to go out of your own doors without seeing people whispering and sneering at you?"

Lord Hazlewood, not being without some real kindliness of heart, looking into the young man's flushed and miserable face, feels a profound pity for him.

"I will see to that," he says warmly. "It has been my doing and I will set it right. I will bring my brother and sister-in-law, and all the people staying with us, to call on you to-morrow. I will give a ball. I will stop in this cursed place on purpose. Annesley" (going over to him and laying a hand on his shoulder), "will you leave it to me? I give you my honor I will set it right."

But the kindliness of tone does what nothing else has done, not all the misery or the shame. Annesley drops his face

into his folded arms and bursts into bitter sobbing.

Despise him if you will, but so it is. The reaction after the humiliation and misery of the last hours, above all, the agony of remorseful pity, as he thinks of his wife, are too much for him.

For a moment the other man stands hesitating; then with a face suddenly pale with a sympathy that he cannot master, he turns away without a word and leaves him.

. . . . . .

And Annesley, lifting his head, finds himself alone.

He looks about him with a sort of bewilderment. Pain and grief have obliterated all sense of time and place. It seems hardly possible that it is only a few hours since he drove out with Daisy, full of hope — that he could have suffered so much in so little time.

But he no longer thinks of himself — he has but one thought, and that is of her. It is not credible to him that a while ago she knelt here, at his feet, holding out her hands to him — the little soft hands that he had so often kissed and caressed — imploring him to forgive her, to believe her, and that he had *refused*.

Surely he had been mad, mad with pain and shame.

Quick of impulse and of passion, and yet strong of affection, all his heart fills with a tender, remorseful pity that goes near to break it. He starts to his feet, staggering a little, weakened by the strain and suffering of the past hours as by a long illness, to go in search of her. He has but one thought, one longing, to hold her in his arms once more, to read forgiveness in her eyes, to tell her that through good report and ill report, ay, even against the very evidence of his own senses, he will believe her now and ever. She may forgive him for having doubted her, but he can never, God help him! forgive himself.

"Daisy," he says softly, going to her room. But the voice that has always answered his so gently answers it no more.

Her gown is laid out on the bed, her little slippers are before the fire, but she is not there.

High and low he goes searching for her, calling her name gently, entreatingly, but she never answers; will never, though he cannot understand it yet, answer again.

In a little while he realizes with a sickening sense of terror and dismay that she is nowhere in the house — she is gone.

. . . . . .

It is near midnight when they find her. The moon, who has hidden her face all the evening behind the angry clouds, giving no aid to the pitiful search, shines out suddenly upon the swollen river — shines out upon a fair dead face lying among the reeds and rushes by the bank — on dank and tangled hair caught among the willow-boughs.

And Annesley holding against his breast the little brown head that such a short while ago had seemed to him the loveliest in all the world, with the bitter cold of it striking into his very heart, knows that his darling is gone of her own free will to the God who is surely more merciful than man.

. . . . . .

The morning is bright and cold. The sun shines with the dazzling whiteness of a chill December day, and the broadened, turbid river dances and glistens with a thousand sparkles of light, as though it had never witnessed one of the greatest of human tragedies.

The chrysanthemums in Annesley's garden — poor scentless substitutes for summer's roses — dry their drenched petals and stretch up their heads to the sun-rays. Daisy's little dog stands on the terrace, barking shrilly at a robin perched high on a leafless bough singing his farewell to the summer.

A drag with a team of bright bay horses, with harness glittering in the sun, and women and men with glistening furs and happy faces on the roof, goes bowling through the country lanes, leaving an echo of laughter behind.

"Not good enough for them, is not she?" says Lord Hazlewood, trotting along the road and in at Annesley's lodge gates at a rate that makes his sister-in-law, sitting on the box by his side, tremble and look back at her husband, who, not being as yet out of the honeymoon stage, is on the seat behind her with his eyes fixed adoringly on the back of her hat. "We will see about that! Before I've done with them every woman in the county shall koo-too to her, and you shall set them an example, my dear — you are a good little creature and above these paltry jealousies. Yes, they are jealous of her pretty face — that is about it. Her father is a brute, I allow, but when I knew her, and I saw a good bit of her at one time, she was the best little girl in the world and the most innocent. If she had not been she would have come to grief long ago; but she was the sort of little girl who *couldn't* come to grief."

As they drive up the avenue it strikes

those who are not laughing or talking that there is a strange and silent look about the house. There are no blinds drawn down to warn them of that which lies within, but there is not a gardener or a servant about.

The face of the man who throws open the door and bids them enter is strange too — white and scared. The face of the master of the house — Annesley himself — who comes out to meet them in the hall, is strangest of all. There is something in it that checks the hearty, cheery, blustering way in which Lord Hazlewood, talking his loudest, tries to carry off the awkwardness of this meeting after the parting of yesterday — checks too the warm shake of the hand with which Colonel Charteris, being given to few words, had meant to apologize silently.

"I am sorry my wife is unable to come down to receive you," says Annesley quite quietly, though in his strange wild eyes there is the restless look of one whose reason totters. "Will you, instead, come up to see her?"

He looks at Mrs. Charteris, but it is Lord Hazlewood who answers.

"By all means, let us go up. Our visit is too early. It is we who ought to apologize," he says heartily.

Annesley leads the way, Mrs. Charteris, her husband, and Lord Hazlewood following. Their friends, seeing there is something wrong, have the good sense to remain outside, loitering about on the terrace and in the gardens awaiting them.

Daisy's own little morning-room, full of the pretty toys, china and pictures, her husband had heaped on her in the early days of their marriage, is empty; but Annesley throws open the door of an inner room.

"Go in," he says briefly.

The sun is partly shut out, but a few stray rays fall full on the couch where Daisy lies, with her wet hair on the pillows, and her fair child-face dead and cold.

There is a moment's silence — a horrible silence.

"You see you have come too late," says Annesley, looking at them with a terrible smile.

"Good God!" says Hazlewood, bursting away out of the room, and calling in his horror, as all avowed atheists are apt to do, on the name in which he professes to disbelieve.

But little Mrs. Charteris falls on her knees by the couch, sobbing aloud, and presses her lips to the cold, white hands.

The action seems to rouse Annesley.

"Do not touch her, do not touch her," he cries, pushing her away. "Yesterday she was not good enough for you to touch. To-day she is too good — she is one of God's angels."

Then he points to them to go out of the room, and as the door closes falls senseless.

. . . . . .

Before night all the county has heard of Daisy's death. All Annesley's friends have left, or written, messages of sympathy. Every carriage in the county has driven up to the door where so few of them have come for a year past, with tearful women bringing their choicest hothouse flowers for the deathbed of the young girl whom they had shunned and despised. But Annesley will not let one of them be laid there. Their kindness comes too late.

"Drowned herself?" says Lady Belminster, to whom every one goes for correct information. "Nonsense! She was walking in the dusk and the river was high and she fell in. She was not a Creamshire woman, you know, and she did not understand these floods. I wonder" (turning her eyes suddenly on one of those who had been most bitter against the little Bohemian while she lived) "you are not afraid to say such a thing. If I were you, I should not like to think of her face on the day of the bazaar, when you all of you cut her, if I thought that."

And in truth there are many of them who will be haunted by that face for many days to come.

. . . . . .

And so in God's churchyard, among the flowers and the grasses, with the open sky above her — not among the stone and marble tombs in the close little church with the grand county people — Daisy takes her long last sleep.

It is only by the kindness, or the stupidity, of the county coroner and a bucolic jury, that she sleeps in consecrated ground at all.

If one of those poor, houseless, clotheless, husbandless creatures, with whom the world abounds, had come by her death in such a manner, they would not have had a doubt about the verdict; but that a woman with a grand house, with costly clothes, and a husband who was one of the county people, should be driven to her death was incredible. So they found it "death by misadventure," and the words had a bitter irony to those who knew the story.

And somewhere on this sorrowful earth there wanders, from house to house, from land to land, a man who eats and drinks, and talks and sleeps — ay, even sometimes laughs — much as other men do, who seems much as other men seem, and yet who carries with him always, in crowds or in solitude, in the glare of daylight or the dead of night, the touch of a beseeching hand, the sound of an entreating voice saying — "Cecil! forgive me, believe me."

But the world does not look below the surface, and the world does not see that.

From Fraser's Magazine.

AN EARLY CELTIC COLLEGE.

On the wide space of sea between the south-east coast of Mull and the mainland of Lorne, to the west of Scarba and Jura, there is a group of six small islands called the Garveloch Islands. They lie out of the steamboat track of tourists to Oban and the Hebrides, and are therefore rarely visited. In the magnificent archipelago which bursts upon the gaze of the traveller as he emerges from the Crinan Canal and passes out through the wide portals of the Dorus Mohr, this group of islands may escape notice altogether, and yet when sailing close to them they exhibit some of the finest sea cliffs on the west coast of Scotland. Rising two or three hundred feet sheer from deep water, they form for nearly three miles, a sublime rampart, on which the elements have carved their grand runes in many a fissure and rugged ledge. Here and there they have crystallized into splendid basaltic columns not unworthy of Staffa and the Giant's Causeway; and at short intervals enormous trap-dykes run up through them, some of which have been excavated by the action of the waves, forming caves and clefts into which the sea dashes with a sullen roar. The natural brown of the basalt is deepened in some places by the beating upon it of incessant tempests into a kind of black bloom, giving to the cliffs a peculiarly stern, iron look, repellent of all life; in other places they are brightened by the most brilliant mural vegetation; lichens giving them a golden or hoary appearance, and mosses softening their haggard features with a tinge of verdure. Myriads of sea-fowl have made their nests in the ledges of the precipices; and their white forms may be seen clearly relieved against the dark background, as they rise in clouds frightened by the shouts of the boatmen, and fill the air with their deafening cries. While on some projecting point a scart or green-crested cormorant sits, and stretching forth its long neck, looks down at the spectator sailing past with its wild, uncanny eye, seeming the very demon of the solitude.

It is hard to realize, what the signs around emphatically indicate, that this region, so peaceful now, was once the scene of the wildest convulsions. These lofty cliffs were upheaved by subterranean fires, and those mountains of Mull which look so quiet and cold in the serenity of heaven, flared as active volcanoes upon the lurid horizon. Soundings here show in one place a sudden abyss six or seven hundred feet deep, and in another a shallow table-land that comes within a few fathoms of the surface, indicating violent plutonic disturbance. The mountains of Mull are supposed to have been no less than fourteen thousand feet high, excelling Etna in sublimity; and their reduction to their present low level, the highest point having an elevation of less than three thousand feet, shows to what a tremendous process of denudation they have since been subjected. Judging from the evidence of the curious leaf-beds of Ardtun in the neighborhood, this great volcanic outburst took place at a comparatively recent period of geological history. The fossils found in these remarkably preserved beds, intercalated between thick deposits of volcanic ashes, are analogous with the existing flora of the eastern seaboard of North America from the mouth of the St. Lawrence to Carolina; and they tell us that islands now utterly bare and destitute of wood were at this period covered with luxuriant forests of deciduous trees, ere they were overwhelmed like the neighborhood of Naples with a succession of fiery deluges. If we wish to form some idea how these ancient geological forests looked, we have only to go to any part of eastern North America, where the aboriginal woods have not been cut down. The Puritan fathers saw the very same kind of vegetation when they landed on the shores of New England two centuries ago. Immeasurably older than this volcanic region are Iona and the outer Hebrides with their Laurentian rocks. They are fragments of a lost country, against whose iron shores the unbroken force of the Atlantic dashed at a time when Skye and Mull and the Garveloch Islands lay as mud at the bot-

tom of a wide sound, and the Alps, Himalayas, and Andes, the highest but youngest mountains of the earth, had not yet reared their snowy crests to heaven.

It is most interesting to compare the geological with the civil and ecclesiastical history of this region, and to trace the striking points of resemblance between them. The inconceivable antiquity of the rocks of Iona formed a fitting scene for those primitive Christian missions which go so far back in our short human history, that they seem almost lost in the mists of fable. The later fiery eruptions which played so important a part in the formation of Mull and the Garveloch group were parallelled by the wild scenes of human strife which those places witnessed from the sixth to the fourteenth century. During the time of St. Columba they formed the battle-ground between the Scots of Dalriada and the heathen Picts, when sanguinary fights between the two rival nations were continually taking place and no human life or possession was safe. Pictish pirates infested the surrounding seas, and ravaged the coasts with fire and sword. On the highest point of one of the Garveloch Islands, called Dunchonnel, perched on the edge of a basaltic cliff, are the scanty ruins of a rude fort, where dwelt a noted sea robber of the name of Johan, son of royal Conall, who descended from his eyrie at frequent intervals and plundered the island of Mull and the mainland of Ardnamurchan. Then came the Danish and Norwegian invasions, which proved even more disastrous to the inhabitants, and resulted in the subjugation of all the western isles to the rule of the Northmen. The whole region is a land of romance, to whose exciting story Sir Walter Scott has given charming poetic expression in his "Lord of the Isles." On almost every projecting trap-rock and prominent headland on this intricate coast, are the remains of strongly fortified castles, erected after the expulsion of the Scandinavians by the fierce Celtic chieftains, whose grim effigies with sword and helmet and coat of mail, we see carved on the tombstones of Iona.

But it is not of fiery eruptions and lawless human passions only that this region witnesses. At the present day the visitor in bright summer weather sees only a paradise of surpassing loveliness reflected in the mirror of a sea as blue as the sky above; and the beauty and tranquillity of nature seem a fit background to that enchanting story of piety and devotion that belonged in the far-off ages to those lonely isles. As out of the faint morning mists that lightly envelop them in July when touched by the rising sun, the islands and coasts emerge, and with a subtle witchery of shyness and boldness reveal their hidden charms, so out of the dim, misty ecclesiastical legends that hover around them, shine before the eye of the student of Church history the heavenly lives of saints and hermits, who helped by their faith and zeal almost to perpetuate into uninspired times the apostolic age. It is of an episode in this romantic, half-fabulous period, which has a charm to the imagination that never palls, that I have now to write.

At the western extremity of the Garveloch group there is a small island separated from its larger neighbor by a narrow strait. Its cliffs are lower, more broken and rugged; and far down over their beetling brows appear patches of grass and wild flowers, which give them a softer appearance. Fronting the mainland, the island rises abruptly in a wall-like face, but at the back it slopes gradually down to the level of the sea. In some places its trap-dykes have been isolated by the action of the tides, and project from the rocks like Cyclopean walls; while at the south end there are deep caves mantled with ivy and huge arches like the fantastic rock scenery of Carisaig, on the opposite shore of Mull. A fringe of rugged rocks, with sharp, teeth-like projections, standing out in the water, guards it on the western side; with tortuous channels, running in among them to the shore like the reef around a coral island. By the natives of the district this island is called *Eilean na Naomh*, or the Isle of Saints. It has been identified almost beyond doubt as the *Insula Hinba* or *Hinbina*, to which Adamnan refers in his "Life of St. Columba," as one of the islands on which the great Celtic apostle had founded his earliest monasteries. From time immemorial it has enjoyed a sacred reputation, a *religio loci*. Before the time of St. Columba it was probably, like Iona, the seat of so-called Druidic worship, or whatever kind of nature-cult the primitive inhabitants had favored. St. Brendan, whose name is still commemorated in that of the neighboring parish of Kilbrandon, had placed upon it a Christian establishment, supposed to have been a college for training preachers of the gospel, previous to its occupation by the monastery of St. Columba; and this establishment was in all likelihood swept

away in the severe struggle between the Picts and the Dalriadic Scots in the year 560, which ended in the defeat of the latter. The old Gaelic word for college, viz., *aileach*, is still preserved in the name of Elachnave, by which the island is best known in our guide-books. Between it and Oronsay there was once a close ecclesiastical connection; its parsonage and vicarage teinds having, previous to 1630, belonged to the celebrated priory of that island, which in its turn was an appanage of Holyrood Abbey near Edinburgh. Latterly it has been included in the parish of Jura. For many centuries it has been uninhabited; and with the exception of shepherds who pay an occasional visit to it to look after their sheep, and a few zealous antiquaries who land on its shores at long intervals, its stern silence is never disturbed by the presence of man.

Owing to this seclusion the island has almost entirely escaped the notice of the world; but next to Iona it is one of the most interesting places in Scotland to the student of sacred archæology. Having heard incidentally of its wonderful ecclesiastical ruins, I determined to see them for myself. Happening to be staying two summers ago at Easdale with Mr. Whyte, the hospitable and intelligent manager of the famous slate quarries there, he placed one of the company's steamers at my disposal. We went first to Oronsay, and spent the day in inspecting the interesting remains of the priory there, with its well-preserved cloisters, grand cross, and richly sculptured tombstones, not much inferior to those in the famous churchyard of Reilig Oran. Returning late in the afternoon to Elachnave, the steamer lay at the back of the island, at a safe distance from the jagged outer rocks, over which the swell of the sea broke in foam. Descending into a small boat, we rowed a long way to shore, entering in between the rocks by a narrow lane of water which shallowed gradually, and was paved at the bottom with white pebbles. The primitive wicker boats covered with hides, in which the early Scottish saints went from island to island to carry on their missionary work, could land here without running any risk from the surf of the Atlantic. Landing on the soft turf we saw before us, looming vaguely through the evening shadows that were beginning to fall, the objects of our quest. In a wide hollow, between two parallel ridges of rock that stretched across the middle of the island, formed by the erosion of several closely contiguous trap-dykes, when the island was at a lower level and the sea broke over it, we saw a series of grey walls ascending one beyond the other up the slope. One could tell at a glance that this spot had been long inhabited, for the grass on the terraces was green as an emerald and smooth as velvet, contrasting strikingly with the bare rocks that everywhere came to the surface. The nettle and the dock, too, grew in the sheltered places, those strange social plants that follow everywhere in the footsteps of man, and indicate even in the loneliest wilderness where his home has been. Close to the shore, at the foot of the slope, we came upon the well, to which the reverence of ages has given the name of *tobhair Columkill*, the well of St. Columba. It was just beyond the reach of the tide; but the winter storms doubtless often dashed the salt spray into it. Around its margin, almost touching the olive seaweeds, the products of another element, grew the wild thyme, crimsoning the turfy bank with its blossoms, and the little euphrasy with its mystic associations; and in the very baptism of the water was a bed of wild cress and a tuft of blue-eyed forget-me-nots, keeping alive at the same time the memory of the azure sky from whence their beautiful tints had come, and of the saintly men whose devoted lives had consecrated the spot. Like the patriarchs who encamped around a well in the desert, the Celtic hermits had built their monastery near this well, the only fresh water on the island. Still and quiet, deep and cool as that well was their own life here; like the margin of flowery verdure which its waters nourished was the influence which that monastery exercised amid the dreary pagan waste. All around had changed; but this silver link with the remote generations remained the same. We could drink from its clear, refreshing cup to-day, as St. Columba had done thirteen centuries ago.

Above this well in a sheltered nook we found a cluster of ruins, which looked at first sight like the wrecks of a long-neglected sheepfold, or a rude farm-steading. But a closer inspection revealed their true character. They were evidently ecclesiastical remains of great antiquity. Nearest us was the largest and most perfect building, beyond doubt a primitive chapel or oratory. The walls were roofless and destitute of gables, but were otherwise almost entire. They measured twenty-five feet by fifteen, and were fringed at the top with large hanging tufts of sea-spleenwort and polypody, and shaggy

with masses of grey filamentous lichen, such as grows upon rocks at the seashore. They were built without mortar, in the most compact and admirable manner, of squared pieces of slate, procured from one of the neighboring islands. Nothing could exceed the simplicity of the structure, presenting no architectural detail except a square-headed doorway in the west end, a small window, splayed on both sides, in the east end, and on the south side a projecting shelf, which probably indicated the site of an altar. To the east of the chapel were several square enclosures, communicating with each other, which formed in all probability the domestic part of the establishment. A little way beyond, on the rising ground, we found a very curious building in a good state of preservation, with one end semicircular and the other square and gabled. It had a doorway on each side, but no traces of windows. In the inside the floor of the semicircular part was considerably raised above the rest; another had a round hole in the centre communicating with a small chamber below. This has been identified as a kiln for drying corn. Below the chapel in the middle of the green sward we nearly stumbled into what seemed an underground cell of irregular oval shape and very small dimensions. Its roof was formed by heavy slabs of stone laid across the walls and covered with turf, and the entrance was by a hole almost level with the ground. In rainy weather it is often half full of water.

We examined this little group of buildings with profound interest; for there is every reason to believe that they are the very ruins of the first monastery which St. Columba himself founded after that of Iona. Upwards of thirteen hundred years have passed quietly over them in this forgotten ocean solitude. They are among the very oldest ecclesiastical remains in Scotland; and their preservation is owing not only to the seclusion and loneliness of their situation, but also to the fact that, contrary to the custom of the time, they were constructed of stone. The religious edifices which St. Columba and his followers had erected in Iona were built of oaken planks, or consisted of strong wooden stakes driven into the ground, intertwined with wands, and plastered on the outside and inside with clay. The monastery was called by an old writer *gloriosum cœnobium;* but its glory certainly did not lie in its architecture. The church was simply a log house, and the dwellings of the saints clustered around it were mere wigwams. Adamnan speaks of St. Columba sending forth his disciples on one occasion to gather bundles of twigs, and to cut down stakes to build his hospice. St. Ninian had, indeed, a hundred and sixty years earlier constructed at Whithorn in Galloway, by the aid of masons whom he obtained from St. Martin of Tours on his way home from Rome, a little church and monastery of stone, called *candida casa* from the whiteness of its walls. It was built twenty-three years before the final departure of the Romans from Britain, and could not therefore have been the first stone building erected in this country, for the houses and temples of the Romans were all constructed of solid stone or brick. But it was in all likelihood the first native structure built of stone, and must have been a great wonder in those days of wattled huts and wooden stockades. St. Kentigern originated the cathedral of St. Asaph in Wales in the sixth century as a wooden church, after the manner of the Celts. And even the missionaries who went abroad carried with them this custom of building churches of wood. In the wooden oratory of Bobbio, afterwards famous for its collection of ancient manuscripts, St. Columbanus, early in the seventh century, reproduced in classic Italy the rude type of Scottish and Irish ecclesiastical architecture. The Celts were woodlanders, finding in the extensive forests that covered the country their houses and their food. Occupied with the chase, and supported by the spontaneous produce of the earth, they never dreamed of stone edifices or felt the want of them. The first Christian missionaries therefore endeavored to estrange the minds of the natives from their old idolatry by building wooden churches after the model of the native dwellings, differing from them only in being larger and more substantial. And when afterwards the fashion of building them of stone came in, the innovation was resented by a large conservative party. Constructed of such perishable materials, the primitive ecclesiastical buildings speedily disappeared, being set on fire in those troublous times, or yielding to the natural process of decay. No trace can now be seen in Iona of the original monastic buildings which St. Columba had founded; their very site can only with the greatest difficulty and uncertainty be made out, and the grand cathedral ruins which now dignify the spot are the remains of stone buildings, constructed at a

much later date and specially adapted to the Romish ritual. The ecclesiastical remains on Elachnave which have survived to our own day are therefore important as indicating what must have been the nature and relative position of the parent institution at Iona, upon the plan of which they were modelled.

To the west of the oratory there are two large square enclosures covered with long, coarse grass. The walls that surround them in most places are embedded in the turf, and only rise a foot or two above the ground. The one nearest the church was evidently an old garden where the monks cultivated the few simple herbs which they required for food. The fact that there was a kiln for drying corn in connection with the buildings indicated that the brethren cultivated this grain, a task which must have been attended with considerable difficulty, considering how scanty was the arable soil on the island, and how rainy and boisterous the climate. Agriculture and the tending of cattle were the principal out-door pursuits with which they diversified their sacred exercises. With the labor of their own hands they procured their food — which was very simple, consisting of oaten or barley bread, milk, eggs, and fish, enriched on festal days, or on the arrival of special guests, by an addition of mutton or beef to the principal meal. The enclosure beyond was undoubtedly an ancient churchyard. This was an essential feature in the monastic establishments of St. Columba. Every one of them, like the original one at Iona, had its cemetery adjoining the church. And while all else belonging to the primitive Celtic Church has disappeared, the numerous old burying-grounds throughout the country which it had consecrated beside the cells of its saints remain to this day hallowed by the memories and affections of many generations. Some of these burying-grounds, however, have a history of their own, and an antiquity far more venerable than that of the saint's cell or the church connected with them. They were hypæthral temples consecrated to pagan mythology long before the introduction of Christianity; and in Christian times they were open-air sanctuaries in which our forefathers worshipped centuries before any of our parish churches were built. The oldest architectural erection upon them was the cross of wood or stone, which the wandering preacher set up as a rally-point for the people, and to hallow the place of their meeting. If Elachnave, as we have every reason to believe, was a primitive seat of pagan worship long before the time of St. Brendan or St. Columba, then the burying-ground beside the oratory must have been the consecrated part of the island. And in all likelihood the Celtic saints erected their own structures on it because of its immemorial sacredness, displacing the original dark superstitions by the blessed rites of Christianity. Only a few rude stones covered with grey lichens, without date or inscription, now mark the spot where some unknown dust reposes. The cross is carved on some of them; and its simple shape, contrasting so strikingly with the elaborate sculptures of the Iona tombstones and the sepulchral monuments in the priory of Oronsay, shows that this graveyard is of far more ancient date than anything that can now be seen in those famous haunts. On a subsequent occasion we took with us a pick and shovel and excavated some of the most promising graves, when we came between two and three feet below the surface upon more ornate headstones of slate of a later date, some of which had the Celtic cross and the other well-known Iona sculptures. There is one large massive slab of slate lying near the oratory, unfortunately broken in two, with the tree of life and some other elaborate patterns carved upon it, which must have been taken from the burying-ground, where it doubtless covered the grave of some prominent dignitary of the Church. Macculloch mentions that when he visited the island there were numerous richly sculptured stones standing in the place. These must either have been removed or have sunk out of sight in the soil during the interval, for there are now none above ground. Rank grass mixed with luxuriant bracken and the common weeds of the waste cover the enclosure, which is indeed God's acre, for it has long passed out of the keeping of man, and no human hand for ages has tended the graves of the forgotten dead. We can hardly suppose that the use of the cemetery was restricted to the members of the monastic institution on the island. It is filled from end to end with graves, and it seems improbable that so many interments could have been furnished by the monastery alone during the comparatively short period of its history. The holy reputation of the place would make it widely attractive; and it would be eagerly sought as a burying-place by the inhabitants of the mainland and of the surrounding islands, just as Iona was sought. Island churchyards besides were

always favorite burying-places, originating doubtless in the greater security from the ravages of wolves which they afforded; the mainland in primitive times being covered with impenetrable forests and swamps, in which roamed wild beasts from which no grave could be secure. Layman and cleric, saint and serf, may therefore have here mingled their dust together; and over them all alike the lonely wind, as it sweeps through the blades of the long grass, sings its requiem. There is nothing mournful, however, in such a cemetery. The breath of the ages has winnowed away all the sadness; the wounds which death inflicted have long ago been healed by his own hand; and the weepers for many centuries have been with the wept. Human sorrows here are but as the inarticulate sounds of the desert; human affections but as the fleeting tints on a sunset cloud; human memories but as the lights and shadows that flit over a mountain slope. We can think of man's death here as we think of the decay of nature; and the life that has been lived so long ago that it is to us but a bodiless dream, seems like the herbs of the field that grow out of its dust, which flourish in the morning and in the evening are cut down and withered. Human remains and the relics of past summers seem here to have the same value; and in vain is the enclosure separated from the common hillside. Nature has trodden down its walls, obliterated its suggestive mounds, effaced its carvings with her lichens and mosses, and brought all that was human in it back to the level of her own universal bosom; and over all, her own life and man's death, she breathes her benison of changeless peace. It is the cross alone that distinguishes the unconsciousness of human life from the unconsciousness of nature. And what a trophy of everlasting victory is that! Nature cannot keep forever in her embrace, though she has done so for many ages, the life for which Jesus died. While we muse here upon the decease which was accomplished at Jerusalem, we feel indeed that none who fall asleep beneath the shadow of the cross can perish; for the shadow of the cross is the shadow of God.

At the top of a green, grassy hillock in the neighborhood, overlooking the shore, there is a heap of loose stones, in the midst of which a square slab of stone projects, marked with a simple incised cross. Local tradition points out this spot as the grave of Eithne, the mother of St. Columba. This remarkable woman was the daughter of Dima, son of Ner, descended from Cathaeir Mor, King of Leinster, and afterwards of all Ireland. Her family for several generations seem to have been distinguished for their piety and talents, and shone in that rude, remote age like lights in a dark place. Her brothers, Ernan and Virgnous, were among the most devoted supporters of their illustrious nephew in his missionary enterprise. Her nephew, St. Conan, was also a distinguished pupil of St. Columba, and his name still appears on the cross at Campbeltown, and is connected with the church of Kilchonan in the Rhinns of Islay. Like Monica, the mother of St. Augustine, Eithne, the mother of St. Columba, had a powerful influence in determining the bent of her son's inclination towards the Church. Indeed, as we learn from the interesting book called the "Felire of Aengus the Culdee Saint," written in the ninth century, nearly all the Scotch and Irish saints were indebted to their mothers for their training for a holy life. Before her child was born Eithne made him the subject of constant prayer. She dreamed one night that an angel presented to her a garment of the most beautiful texture and varied hues. This gift, however, he afterwards took away; and as it flew through the sky it continued to unfold and extend itself over mountains and plains, until at length it covered a space which her eye could not measure. Finding what she had once possessed thus gone out of her reach, she was grieved exceedingly at her loss, but the angel comforted her by saying that the expanding garment was a symbol of the teaching of the child that should be born to her, which would spread over all Ireland and Scotland and be the means of bringing an innumerable company of souls to heaven. Like Hannah of old, she dedicated her little Samuel to the Lord from his very infancy; and one can imagine with what tender solicitude such a mother would watch over and mark the early indications of piety and talent in a child, whose birth was heralded by such wonderful auguries. We know nothing regarding her subsequent career except that she lived to see her son fulfilling the promise of his childhood, and fully justifying all the predictions concerning his future greatness.

It must not be forgotten that the brethren at Elachnave were not monks in the sense in which the word is usually understood. They were not associated together

for the express purpose of observing a certain monastic rule; but they imposed special regulations upon themselves for the promotion of order; and their chief object for living in fellowship was to impart instruction and prepare candidates for the post of the ministry. The institution was therefore, properly speaking, not a monastery, but a seminary of sacred learning, a centre of missionary enterprise. From time to time suitably qualified men were sent out from this island in all directions to preach the gospel, to baptize converts, to visit and heal the sick, and to instruct the ignorant. Theirs was not the idle life of mere recluses who had abandoned the duties of society for the sake of selfish ease. Not for purposes that terminated in themselves did they cultivate in seclusion their natural gifts and spiritual powers. Like a streamlet that diffuses to the populous dwellers on its banks far down in the valley the blessings it has gathered from the clouds in the lonely places among the hills, so these monks retired from the world that they might communicate to men in their own busy haunts the high thoughts that had come to them from the inspiration of the desert. But this use of solitude as a preparation for an active missionary life in the crowd soon gave place to the love of it for its own sake as a means of personal holiness. An increasing asceticism was regarded as a high type of Christian virtue, and this influence gradually led the brethren to sever themselves from the common or cœnobitical life of the fraternity, and either to build for themselves solitary cells near the monastery, or to retire altogether into the wilderness. At first many ecclesiastics were married men, although partially separated from their wives by their religious duties; but at the close of the age of St. Columba and subsequently, a more pretentious morality made its appearance, and complete celibacy was practised by those who aspired to the highest degree of perfection. In the sixth and seventh centuries the old monastic church had become almost entirely eremitical in Scotland. No other type of excellence save that which was developed in complete solitude was prized, or even existed, and to become religious in those days simply meant to become a recluse or hermit. The teaching and example of the first great hermits — St. Paul of Thebes and St. Anthony — had reached the western isles, and had there awakened an enthusiastic response. We read of Cormac na Leathan and other disciples of St. Columba sailing forth over the northern ocean to find in some far-away island a desert spot where there might be no trace or recollection of man, and failing in the attempt — so widely had the eremitic fever spread and taken possession of every available place. The famous legend of St. Brendan and his seven years' voyage in search of "the land promised to the saints," which stirred up many an adventurous spirit to navigate the western seas, and perhaps filled the mind of Columbus, long afterwards, with the hopes which led to the discovery of America, was, as Kingsley well observes, but a dream of the hermit's cell — of the ideal of an earthly paradise where no echo of man's life ever intruded. It was this intense craving for solitude that induced the disciples of St. Columba to forsake the parent institution at Iona and build an establishment in the deeper seclusion of Elachnave. But, as Dr. Skene has remarked, even the little society immured on that desert island was too large a world for some of the more meditative and ascetic spirits of the fraternity. While still living in the island, and retaining their connection with the monastery, they sought frequent opportunities of retiring for a time to a separate building for solitary prayer or for penitential exercises, during which they held no intercourse with their brethren.

Of this curious mode of life there is a very interesting relic still preserved in the island. A short distance below the cluster of monastic ruins, on a grassy slope not far from the shore, are the remains of two circular, dome-shaped buildings joined together. They are built of loose stones, without any cement, overlapping each other and coming to a point in the roof. The walls are very thick and strong, and have been so firmly and artistically constructed that part of the beehive roof of the smaller one still suspends its curve in the air, having defied the storms of centuries. On the outside it is covered with mould and sods, and blends almost insensibly with the turfy hillside. The larger structure, which is half demolished, is internally fourteen feet in diameter, and opens upon the outside by means of a square-shaped doorway facing south-west, another similar doorway communicating between the two buildings at the point of junction. So low was the entrance, that one required to creep on all fours in order to gain admission. The walls were blackened with the smoke of fires kindled by fishermen, who from time

to time were forced to take refuge in this place by stress of weather. By them these beehive cells are well known as "the Ovens," to which, indeed, they bear a considerable resemblance. The place in which this curious building is situated seems, according to Adamnan, to have been anciently called Muirbulcmar; and in one of the cells, as we learn from the same authority, St. Feargne, or Virgnous, the maternal uncle of St. Columba, led a hermit's life for twelve years, "as a victorious soldier of Jesus Christ," after having lived for many years previously "without reproach in obedience" among the brethren at Iona. Similar eremitical remains, belonging to the same, or to a subsequent age, still exist among the Hebrides, in the islands of St. Kilda and Rona, in the Flannan Islands to the west of Lewis, and in Inchcolm in the Firth of Forth. Lord Dunraven, in his magnificent work entitled "Notes on Irish Architecture," exhibits most interesting photographs of those which have been found in Ireland. These singular dwellings are called by the modern Irish *clochans;* in ancient times they were known as *carcair*, a word identical with the Latin *carcer*, a prison. In some places only one cell is found, where the lonely inmate lived a life "by heaven too much opprest." In other places two or more cells were built beside each other. In the island of Ard-oillean, off the west coast of Ireland, several separate cells are seen enclosed by a circular uncemented stone wall, in which a number of hermits lived an individual recluse life, as distinct from the cœnobitical life of the monastery. The two cells joined together at Elachnave are a striking example of the transition between the solitary abode of the hermit and what may be called the social eremitical establishment. We are reminded by the social life of these "solitaries" of the parallel instance in the romance of "King Arthur," where Sir Bedevere and Sir Launcelot, after they lost their lord, lived with seven other noble knights for six years in great penance in a hermitage between two hills. To the single cell of the solitary and the clustered cells of the congregated hermits, the common name of *disert* was given, a name which survives in Dysart, a small town in Fifeshire, so called because of the eremitical cell of St. Serf in its neighborhood. At Iona there is a small burying-place, south of the ruins of the cathedral, still called *Cladh an Diseart*, near which is a harbor called *Port an Diseart*. These local names preserve the memory of a hermitage which once existed in this place, to which some of the brethren of the monastery retired for a time into a deeper solitude. In after ages cells were built against the wall of a church, called *reclusoria* or *anchorholds*, where the devotee immured himself for life. Traces of such living tombs, in which women as well as men spent their whole life in prayer and meditation, may still be seen in connection with many of the old parish churches of England and Ireland, such as Rittendon in Essex, Clifton Campville in Staffordshire, Chipping Norton, Oxon, and Warrington in Warwickshire. The position of such anchorholds as have entirely vanished is often indicated by little curious windows which occur in many old churches in various situations and at various heights, called "low side windows." Some of these windows are simple square openings, which were never glazed, and were closed only by shutters; others have a stone transom across, the upper part of which is glazed and the lower closed with a shutter. The hermit who lived inside the church could have light from the glazed portion of the window, while through the unglazed part he could receive his food from those appointed to wait upon him, and hold communication with the outer world. Others of these low side windows would enable an anchorite living outside the church to watch the worship of the sanctuary within, and to receive the holy communion through the opening. It is some window of this kind that is alluded to in the romance of "Prince Arthur." "Then Sir Launcelot armed him, and took his horse, and as he rode that day he saw a chapel where was a recluse which had a window that she might see up to the altar; and all aloud she called Sir Launcelot, because he seemed a knight-errant." Rules were laid down for the construction of such anchorholds. Bishop Poore describes in his "Ancren Riewle" the kind of life that was lived in those cells; and a special liturgical service was appointed in connection with the immuring of the occupants, as we find in the "Salisbury Manual," and in the pontifical of Lacy, Bishop of Exeter.

The two beehive cells at Elachnave remind us of a curious custom in connection with the discipline of the St. Columban Church. When any one of the brethren was guilty of some grave offence, he was obliged to seclude himself, with a member of the fraternity distinguished for

his piety, whom he made his *anumchard* or soul-friend, and implicitly obeyed in the performance of the special exercises prescribed for his restoration. Perhaps these cells were made use of for this penitential purpose, as well as for the practice of extreme asceticism on the part of those who led blameless lives. Another punishment often inflicted for light offences was the recitation of the whole or part of the Psalter, with the body entirely immersed in water. This penance may have been carried out in the curious underground cell near the oratory, which, as I have said, is often half filled with water during rainy weather. I was informed by some of the old people at Easdale that thirty or forty years ago, a curious stone was found near these beehive cells with a narrow aperture in it, which was used in the administration of justice. The accused was required to put his hand through it, when if innocent he could withdraw it easily, but if guilty his hand became swollen to such an extent that he was held fast. This Celtic ordeal recalls the similar one in connection with the famous marble mask, known as the *bocca della verità*, in the portico of Sta. Maria in Cosmedin in Rome. Doubtless both were derived from the same primitive source, and belonged to the original pagan symbolism which underlay alike the Christianity of Rome and of this remote island of the Hebrides. We searched diligently for this interesting relic among the cairns of loose grey stones lying around, but were unsuccessful.

Besides the performance of their religious duties, two other occupations diversified the monotonous existence of the brethren of Elachnave. One was the practice of the healing art. And just as the heads of monasteries in the St. Columban Church, like the Aaronic priesthood, were descended from the same family, and attained to their office by hereditary succession, being known for several hundred years as "the Coärbs of Columcille," so those who practised medicine among them perpetuated a family of doctors, in which medical skill was an inheritance of birth. Certain families in Islay and Mull, the "Olla Ileach" and "Olla Muileach," produced famous physicians up to the end of last century. The other occupation alluded to was the copying of manuscripts. St. Columba had inspired all his followers with his own ardent love of books. No labor in the monastic institutions was regarded with greater honor than the writing of service-books for the use of the various churches which rapidly sprang up throughout the land. To the elaborate ornamentation of copies of the Gospels and Psalters, many years were devoted by the skilful and patient transcribers. At Elachnave there was doubtless a library of such classic and Christian literature as existed in those days. Possibly some of the manuscripts in this island and at Iona, rescued from destruction at the Reformation, found their way to the colleges of Douay and Ratisbon, or even to the vast literary storehouse of the Vatican, where they may still lie hid along with the unknown spoils of the Celtic monastery of Bobbio in Italy, waiting for some future Cardinal Mai to discover them. A few of the manuscripts of the St. Columban monasteries of the sixth and seventh centuries survive to this day. The famous Psalter called the "Cathack" or "Book of Battle," which St. Columba copied without permission from the original, in the possession of Finnian of Moyville, and which was the cause of the battle that led to his expulsion from Ireland, is now in the Museum of the Royal Irish Academy, enclosed in its silver reliquary. The copy of the Evangelists called the "Book of Durrow," which belonged to St. Columbia's principal Irish monastery of that name, in the county of Meath, and the "Book of Kells," traditionally known as the "Great Gospel of Columcille," are preserved in the library of Trinity College, Dublin, where I had lately the pleasure of carefully examining them through the kindness of the accomplished librarian. Both these manuscripts are remarkable specimens of the vast skill and labor bestowed by the St. Columban transcribers upon the embellishment of the Scriptures. But the "Book of Kells" is by far the more wonderful of the two. The elaborate beauty and extraordinary richness and intricacy of its illuminations, transcend all previous ideas of such work, and fill every one who examines them with astonishment and admiration. It is worthy of the veneration which it has received for nearly thirteen hundred years, as one of the principal Christian relics of the western world.

The loss of the manuscripts, chartularies, and treasured records of a remote antiquity at Iona, during the destructive storm of the Reformation, is deeply to be regretted on many grounds. Had they survived they would doubtless have thrown much light upon the history of the institution at Elachnave. As it is, we know very little indeed of the events that

transpired in this secluded place, or of its subsequent fate when the Culdees, persecuted by their inexorable enemies of the Romish Church, and expelled from the outposts in the surrounding isles, were finally driven away from their last stronghold in Iona. Of its early history a few dim traces may be incidentally found in Adamnan's life of St. Columba. This author mentions that St. Columba sent Ernan, his uncle, to preside over the monastery he had founded in this island. Being an aged man, however, he did not long exercise this office. Feeling himself seriously ill, he desired to be taken back to Iona, that he might die within the hallowed precincts of the institution he loved so well. St. Columba set out from his cell to the landing-place to meet his aged relative, as he feebly attempted to walk the short intervening distance. But when there were only twenty-four paces between them, Ernan suddenly fell down to the ground, and breathed his last before St. Columba could see his face; and on the fatal spot a cross was raised to commemorate his death. St. Columba frequently visited the monastery at Elachnave, and exercised over its affairs a paternal surveillance. Adamnan speaks of the church where he ministered, and of the house which he occupied on such occasions, which may be identified with the existing remains. It was while living here at one time that he was raised into a rapt ecstatic state like St. John in Patmos, and for three days and nights he neither ate nor drank, nor suffered any one to approach him. The house in which he dwelt was filled with heavenly brightness, and through the chinks of the doors and keyholes rays of surpassing brilliancy were seen to issue during the night. Certain spiritual songs also, which had never been heard before, he was heard to sing. He came to see, as he allowed in the presence of a very few afterwards, many secrets hidden from men since the beginning of the world fully revealed. Here too he received a deputation of four holy founders of monasteries, who had come from Ireland to visit him. Comgall of Bangor, and Cainneach of Achaboe, the two who had accompanied him in his first visit to King Brude, Brendan of Cloufert, and that Cormac, who, as I have said, undertook in vain a perilous voyage in the North Sea in search of a solitary island in which he might place a hermitage. Here too occurred a picturesque incident, told by Adamnan and poetically adorned by Montalembert in his "Monks of the West." When about to excommunicate the sons of Connal, notorious freebooters and persecutors of the Church, one of their associates rushed upon St. Columba to kill him with his spear. A monk called Finlugan, clothed in the saint's cowl, stepped in between the intending murderer and his victim. The spear failed to pierce the cowl, as if it had been a coat of mail, and the monk remained unhurt. Lambh-des, the assassin, fancying that he had slain his victim, fled immediately. Exactly one year after this, St. Columba, in Iona, said: "This day twelve months ago, Lambh-des did his best to slay Finlugan when he took my place; to-day he himself is slain." And so it turned out. That very day Lambh-des was slain by one Cronan, who, it is said, discharged his weapon in the name of the saint.

A spot more lonely, more secluded from the ordinary associations of human life, from the common sights and sounds of nature itself, than the site of these ruins, it is impossible to imagine. The landscape is reduced to its simplest elements. It is a mere sketch or outline of that which in other places has been filled up. No streamlet animates the scene with its bright sparkle and cheery murmur; no tree or bush makes a sanctuary of shadow and mystery in the naked waste; nothing but the bare rock with its infrequent patches of verdure meets the eye, over which the wind wails with almost human plaintiveness. Everything speaks only of eternal endurance — the rocks around, the sky overhead, the sea beyond. On the shore the wave beats unweariedly in its ceaseless ebb and flow, as it has done for untold ages. It is the throb of nature's great pulse that counts no minutes in its everlasting youth. No conspicuous foliage indicates the passage of the seasons by its kindling buds in spring, and its fading tints in autumn; and the weeds and wild flowers are too small and hidden to register to the eye the changes of the year. Save by a tenderer tinge that comes upon the herbage in the early year, and a sadder brown that overshadows it at the close — save by the wilder or softer voice of wind and wave, by the darker or brighter aspect of sea and sky, by the longer or shorter light, the seasons are indistinguishable, and one perpetual autumn broods over the place. Man's life here becomes a part of the eternal monotony of nature. The repose of body and spirit, the conformity of the order of

human life with the beautiful order of God's works, which weary hearts out of monasteries consider the ideal blessedness, could here be enjoyed in fullest measure. The life of the lichen on the rock could not be more impassive. The great world comes only to the verge of the mainland; and the larger islands loom so faintly in the distance, that they bring no suggestions of human tears and strife to disturb the solitude. The toiling generations that in long succession sow, and reap, and struggle are forgotten. Only with God's sea and sky, on which man can make no impression and leave no trace, is the wide horizon filled. The sunrise opens up every day its mystic visions of the apocalyptic city; the sunset flecks its path of gold over the placid waters leading to the gates of the west, where human vision ends in the blinding glory; and the far mountains flushed with the dying daylight awaken thoughts of the everlasting hills "beyond which God's divinest secrets lie."

It may be that the Celtic monks had no power of admiring natural scenery. They lived long before that faculty, which is a product of modern times, was developed. The solemn purpose of their lives might have put into the background all thoughts of beauty either in the works of nature or of man. But still they could not be altogether unconscious of the romantic surroundings of their retreat. St. Columba selected Iona for its convenient position, and the special advantages which it offered for carrying on his mission; but we have reason to believe that he who was in other things so far before his time, was not insensible to the picturesqueness of the spot itself, and the incomparable views of the archipelago of islands of which it formed the centre. And something of the same mind must have possessed the disciples of this gifted seer who lived in the monastery of Elachnave. Dreary and monotonous as was their narrow home, it had a grand outlook. Following the broad rift occasioned by the erosion of the trap-dyke, in which the ruins are situated, to the summit, a great window opens up there between stupendous walls of rock that plunge sheer down into the sea. This window frames, for one-half the horizon, one of the grandest views in Scotland. But from the height above it the eye can see all around the horizon — and nothing can exceed the magnificent sweep of sea and shore which it embraces. Eastwards Ben Cruachan and the shoulder of Ben Nevis appear in view. In the south-west the rocky ramparts of Scarba and the twin Paps of Jura alternately appear and disappear through their wreaths of clouds. Due west the dark-blue line of Colonsay breaks the monotony of the Atlantic billows at their utmost verge. And northwards the shores of Mull, with their near basaltic cliffs and distant, far-extending headlands, slope up to the lofty cone of Ben More in the interior. That wide horizon to the monks of old must have been a transfiguration scene in which the most varied effects of light and shade, peace and storm, would be constantly displayed. Every sound would be in harmony with the transcendent vision; and after the still, small voices of the wind on the height and the wave on the shore would come at intervals through the solemn silence thus accentuated the thunder roar of the vexed whirlpool of Corryvreckan; and the spectator would be irresistibly urged — like Elijah at Horeb — to cover his face with his mantle before the greatness of God.

From Macmillan's Magazine.

THE MYSTERY OF THE PEZAZI.

A SKETCH FROM CEYLON.

I AM no believer in the supernatural, and in the face of the apparently inexplicable circumstances which I am about to relate, am persuaded that they could be accounted for in some way, though whether scientifically or by what other means I must confess myself at a loss to determine.

I had certainly never expected to meet with anything approaching a ghost or a "mystery" in Ceylon. One generally associates the supernatural with ancient habitations — ancestral mansions, deserted chambers in baronial halls — peculiar to the "old country" or the Continent. The cold, dark nights of the Christmas season, or the waning twilight of a midsummer's eve, are more suggestive of ghostly appearances and weird sounds than the blazing sun of the tropics, and the warmth and verdure which lend a cheerful brightness to life in the East.

But I suppose all countries and climes are alike liable to be surrounded with that indefinable air of mystery which seems to have had its existence from time immemorial, and its ascendency to a greater or less extent over all natures.

Few places but have their legends and stories attached to them, and Ceylon is no exception to the rule; indeed, the natives are imbued to a more than ordinary degree with superstitious feelings, but if I were to go into a dissertation upon their strange customs and fancies I might fill pages, for which, with the present matter in hand, I have neither time nor space.

In the following account I wish to state that every circumstance related is strictly true, and I invite the attention of those who may be able to render a possible explanation of facts for the personal experience of which I can vouch, and for a solution of which I have repeatedly sought, but to the present time without avail. The occurrences to which I allude took place on the night of the 28th of August, 1876. It may be as well to state briefly, first of all, a few preliminaries which bear upon the matter.

We were residing on one of my husband's estates in the outlying district of Ouvah, some thirty miles distant from the little up-country town of Badulla, destined, however, at some future day to become no unimportant centre in connection with railway extension. On an adjoining property we had long contemplated erecting a bungalow more suited to our requirements than was the little abode we then occupied, which was very small and homely. In the beginning of 1876 we designed the plan, and made arrangements for the commencement of the building. But a drawback existed to the speedy completion of the work, in the fact that the indolence of the native is so great that, without constant supervision he is not to be depended upon, and my husband soon found that his masons and carpenters were no exception to the general rule, and that his occasional visits did little to expedite the progress of the bungalow.

After some persuasion I was induced to leave "Mausa-Kellie," and remove into the new bungalow on "Allagalla" estate, in order that we might be on the spot, and so hasten its completion. Had I not felt tolerably secure in the prospect of an uninterrupted continuance of fine weather, I should have quitted my quarters at Mausa-Kellie more reluctantly than I did, for they were at least comfortable; and in going to our new residence we had to be fully prepared for "roughing" things in a way I, at least, had never done before. But the season was advancing, hotter and drier each day, and on the Ouvah side of the hill district the weather is much more to be depended on than in the parts adjoining Kandy. On the latter side both the south-west and north-east monsoons are felt, and nine months of the year are more or less rainy. In Ouvah, the south-west or little monsoon is not so perceptible; a thunderstorm or two, or a few heavy showers just about that time of year, may serve to remind one of the season; otherwise the weather is fine and dry, almost without intermission, from January to September.

The physical characteristics of this locality are somewhat peculiar. Although the estates adjoined, and the bungalows were not more than a mile or so from each other, the distance to be traversed by the bridle-path which led round the base of the hills, a range of some extent, was at least four miles. On foot, by a stiff climb, the ascent from Mausa-Kellie and the descent into Allagalla could be accomplished, the estates being situated on opposite sides of the hill. As this route was scarcely practicable for a lady, and I had no desire to expose myself unnecessarily to the fatigue of a ride in the hot sun, I had not previously visited the site of our new building, and certainly felt somewhat staggered at the appearance things presented on my arrival there.

I had sent over a sufficiency of furniture and household necessaries for our requirements, and E—— had spent the day in making the best arrangements he could for our comfort, but the scene of bustle and confusion which met my eyes when, turning a sharp angle of the road, I came suddenly in full view of the bungalow, exceeded all my anticipations. The estate was one of the steepest in the district; indeed no suitable site for a bungalow could be found without considerable excavation, and this gave it the appearance of being built upon a ledge of rock, the sides descending almost perpendicularly to some depth. From its peculiar situation we might not inappropriately have designated it the "Eagle's Nest." That part of the estate on which the bungalow was built being a new clearing, and some of it only just burned off, the immediate surroundings were not very attractive; but the adjacent ground — young and old coffee on the lower parts, patina on the summits of the hills, dense jungle crowning some of the ranges, tufts of scrub and forest dotted here and there on others, and the gradual slope of the valleys between each range towards the wide expanse of low country a few miles

further below — combined to form a prospect as magnificent as any I had ever beheld.

Just below the bungalow I came to a standstill; the road suddenly terminated, and an almost perpendicular bank stood up before me. "Cock Robin," however, was better acquainted with the spot than I was, and doubtless divining my hesitation took his own way, went straight at it, and, floundering up, landed me safely on the levelled compound above, amidst a confused litter of bricks, sawn timber, heaps of lime, pools of mortar, stones, tools, masons, carpenters, and coolies, a conglomeration of various implements and races, Malays, Tamils, and Singhalese of every stamp and caste being congregated together in almost equal numbers.

From behind this motley assemblage a heavily bearded visage was soon distinguishable, and a familiar figure emerged, its burliness scarcely diminished by a suit of white jungle clothes, and the light of amusement inclined to beam out of the dark, kindly eyes, as they rested on mine, and descried the consternation and disgust which must have been very vividly pictured in them. When, at length, after dismounting, I managed with my husband's assistance to surmount the various obstacles in our way and reach the bungalow, I was even more dismayed, for although he had prepared me for finding things in an incomplete and disordered condition, my imagination had scarcely realized the veritable chaos which the scene before me presented.

The building was, or rather promised to be, a fine large bungalow, containing several lofty rooms, a spacious smoking-hall, and broad verandahs. But the plan was only just marked out by stone pillars and partially-built walls — even the roof was not shingled all over, and through the open rafters here and there the sun blazed fiercely in. The only room which was really in a habitable state was the office, and that could just boast of four walls which were already dry and whitewashed; but even here the doors were not put up, and pieces of coir-matting, hung before the apertures, were improvised as curtains in their place. The room was, however, sufficiently large to admit of our using it as a sleeping apartment; we migrated into the various rooms by turns with our dressing paraphernalia, and the few articles of dining-room furniture indispensable to our needs were placed day by day wherever we found it most convenient to sit down to our meals. How I resigned myself during so long a period to the many drawbacks to comfort I then experienced I find it difficult in the retrospect to conceive. But whenever I felt a disposition to grumble I had only to look from the front verandah to dispel every feeling of impatience and discontent. The magnificent panorama before my eyes almost surpassed description.

Allagalla being situated at the very extremity of the district, the termination of the various ranges of hills around afforded us the view of a wide expanse of low country, extending to the right and left as well as before us.

Directly opposite, stretching away for miles towards the beautiful port of Trincomalee, it lay wrapped in an unbroken stillness. Some idea of the remarkable purity of the atmosphere may be formed from the circumstance that on a clear day the sea-line can be distinctly traced on the horizon at a distance of more than seventy miles, looking like a silver thread — the white foam of the advancing and receding waves even perceptible at times to the naked eye. To the left lay the watery plains of Aloot Newara — the Bintenne fields, where the snipe flock in numbers as the season approaches, affording good shooting for all lovers of sport. Beyond, dimly fading in the distance, the broken peaks and summits of the Kandyan ranges reared their lofty heights — Mchadahamahanewara, the Knuckles and Hewahette, and even portions of the Nitre Cave and Kalibooka districts being visible sometimes. Immediately below we could trace at intervals portions of the white line of high-road passing to the right through the paddy-fields of Beebola, and onward through the park country, by many deviations from the straight line to Batticaloa, one of the hottest ports in the island.

I found Allagalla a most lonely abode; it was so far from any other estate, or rather bungalow (for estates adjoined it in more than one point), that we rarely saw visitors, especially as we were in such confusion with the building operations that we could not entertain. E—— being secretary to the Medical Aid Committee at that time, and a member of the Planters' Association, had many public meetings to attend in the district; and the visiting of his own properties, both in the immediate neighborhood and in other districts, made his absences very frequent. But I was thoroughly accustomed to jungle life, and, except on his trips to any great distance, rarely cared to accompany him,

the long rides in the hot sun being so trying to me. I had plenty of resources for occupation and amusement in my work and writing, drawing and books, though I often longed for my piano, which of course had been left with our other goods at Mausa-Kellie; my poultry-yard and flower-garden too were still in prospective at Allagalla, and I missed them considerably. But, on the whole, night was the only time when I really did feel the loneliness and solitude almost more than oppressive. Even when my husband was at home the weird aspect of the surroundings had always an unpleasant effect on my nerves, and it was sometimes with an unaccountable sort of shiver that I rose from my comfortable rattan reclining-chair in the verandah to retire for the night, when he had fallen asleep in the opposite long armchair.

To stand on the levelled space in front of the bungalow on a bright moonlight night, and gaze around, gave me a shuddering sensation of something "uncanny" about the place. The black, overhanging rocks above — the "devil's rocks" as they were called — looked blacker in the shades of night; the charred trunks of felled trees in the clearing stood out in huge, shapeless bodies here and there, the few remaining branches on them projecting like phantom hands and glinting in the fitful moonlight; the chasms — and there were many — had the appearance of unfathomable depths; and the sharp outline of the rugged hills against the sky made them resemble impending masses in close proximity, ready to close upon and overwhelm everything within their range beneath their stupendous weight.

Before we took up our residence on Allagalla there had been floating rumors amongst the natives that a *pezazi*, a *yakkho* — or in plain English, a *devil* — haunted its vicinity, rumors which of course E—— regarded with supreme contempt, ridiculing all the stories which came to his ears.

Still the apprehension exhibited by the natives was genuine enough, and we had more than one instance in which fear so completely overcame them that they succumbed to its effects. One case, which fell immediately under my notice, was that of a Singhalese lad about seventeen years of age, employed as a servant by the conductor, who became, as the Tamils graphically describe it, *pezazi poodichidi*, or "devil-taken," — as we should express it, "possessed of the devil," — and gave himself up for lost. He had for some days refused to work, and hung about the compound in a state of abject terror, which increased on the approach of night. Soon he betook himself to one of the go-downs belonging to the bungalow, where he lay in a state of partial coma, trembling and quaking in every limb, and refusing all offers of food or medicine. Unfortunately, at that time, the appointment of a medical officer to the district had not been concluded, so that no professional help was at hand. Persuasion failing, threats and even force were resorted to, but without effect; nothing would rouse him, and all that could be gathered from his miserable articulations was a kind of incoherent entreaty to be left to his fate; it was useless to make any effort to rescue him from the grasp of the fiend who held him as his victim. On the morning of the third day the unfortunate creature was dead, and laid in his grave before the sun went down.

This circumstance impressed me very unpleasantly, and although I scouted the idea of there being anything to justify such apprehensions as led to the death of the wretched boy, I could not but wish that these notions were less prevalent amongst the natives, as it became quite disagreeable having the servants and coolies in a state of continual trepidation, and circulating the most improbable stories amongst themselves and their neighbors.

I observed, however, that those natives who professed Christianity, both Romanists and Protestants, exhibited no symptoms of fear, neither were they so credulous as the Buddhists. The Tamil coolies appeared more superstitious than any, impressing upon one the generally received opinion, which has almost become an axiom, that the greater the ignorance the greater is the superstition.

The memorable night on which the circumstances I am about to describe took place, E—— and I had retired early, as was our usual custom. The servants slept in go-downs outside, built in the compound at the back of the bungalow, and it so happened at the time that the conductor and his family also occupied a go-down, the small bungalow in which he had formerly lived having been recently destroyed by fire.

E—— was never a sound sleeper, and the least noise soon roused him. I, on the contrary, enjoyed my repose, and even when dawn of day urged the necessity of rising if we would have a refresh-

ing half hour before the sun burst forth in its tropical heat and dried up all the dews of night, would fain have lingered in the transition state between slumber and wakefulness, when, knowing that we are in dreamland, we still wish to prolong the duration of that blissful feeling of semi-unconsciousness, and avert for a while the awakening to the stern realities and commonplaces of everyday life.

Thus, wrapped in dreams, I lay on the night in question, tranquilly sleeping, but gradually roused to a perception that discordant sounds disturbed the serenity of my slumber. Loth to stir, I still dozed on, the sounds, however, becoming, as it seemed, more determined to make themselves heard; and I awoke to the consciousness that they proceeded from a belt of adjacent jungle, and resembled the noise that would be produced by some person felling timber.

Shutting my ears to the disturbance, I made no sign, until with an expression of impatience E—— suddenly started up, when I laid a detaining grasp upon his arm, murmuring that there was no need to think of rising at present — it must be quite early, and the kitchen cooly was doubtless cutting firewood in good time. E—— responded in a tone of slight contempt that no one could be cutting firewood at that hour, and the sounds were more suggestive of felling jungle; and he then inquired how long I had been listening to them. Now thoroughly aroused, I replied that I had heard the sounds for some time, at first confusing them with my dreams, but soon sufficiently awakening to the fact that they were no mere phantoms of my imagination, but a reality. During our conversation the noises became more distinct and loud; blow after blow resounded, as of the axe descending upon the tree, followed by the crash of the falling timber. Renewed blows announced the repetition of the operations on another tree, and continued till several were devastated. Exclaiming wrathfully that he would "stand this sort of thing no longer," E—— pushed aside the matting overhanging the doorway, and passing through a couple of rooms and a passage, stood in the back verandah and shouted for the *appoo* and the conductor. I remained within, listening in mute astonishment to what was passing. It appeared that both conductor and servants were all awake, and I could hear the wailing of a child, followed by the sound of a woman's frightened weeping from one of the go-downs outside. E—— was the first to speak. In imperious tones he demanded what the conductor meant by allowing such a disturbance at that hour — why did he not put an immediate stop to it? The conductor's reply was given without hesitation, deferentially enough, but with no attempt at evading the question. His English was not elegant, but at least explicit. "I should be very glad to stop it, sir, if I could, but I can't. It's no one at work, sir — it's the devil."

I confess that my nerves were not proof against this startling announcement. I sought companionship. Throwing on my dressing-gown I quickly proceeded to the verandah, looking at the clock on the sideboard *en passant*. The hands pointed to 2.55 A.M. Sufficiently convinced that there was something very extraordinary going on, I joined E—— in the verandah. The conductor, head appoo, and several of the other servants were standing outside in the compound. All this time there had been no cessation of the sounds. The regular blow of the axe and the crash of the falling tree went on without intermission. For the moment, as the conductor ceased speaking, E——'s utter astonishment almost took away his breath. This was succeeded, as he has since admitted, by a cold chill, which crept imperceptibly over him as he stood there, and seemed to paralyze his powers of articulation. Hastily rallying himself, with rising anger, he found utterance.

"Conductor, do you take me for a fool, or am I to consider you one, to believe in such humbug as this? I looked upon you as a man of some sense, but you appear to be as foolish as the coolies. You know as well as I do that the devil doesn't play practical jokes like these, and that no such person as the devil is allowed to go about as these ignorant people describe — that it is simply a tissue of humbugging superstition."

The conductor shook his head. "He was very sorry to lose master's good opinion, he had no wish to believe in the devil, he did not believe in the devil, at the same time he could not account for the sounds. No person would dare to be in the jungle at this hour, in such darkness, therefore no human being could make them," *ergo* the devil must!

Logic certainly, but not convincing enough for E——. Exasperated beyond control, he called for his gun, and shouting in Tamil that he was going to fire, discharged both barrels in the direction whence the sounds proceeded — the strip of jungle almost adjoining the compound,

so close was its proximity to the bungalow. The sounds became fainter; suddenly stopped. Congratulating himself upon having "settled" the devil, for the present at any rate, E—— re-loaded his gun, and sending the servants to their rooms, we returned to our own, to compose ourselves to slumber again if possible; but I am fain to confess that my apprehensions were quickened and my nerves by this time quite unstrung. Anything tangible one might grapple with and surmount, but this mysterious intruder baffled and filled one with undefinable dread — of what, it was impossible to conjecture.

Some time elapsed, it may have been a quarter of an hour, and my quakings having somewhat subsided, I was dropping off into a restless doze, when suddenly a whole battery of blows resounded in the immediate vicinity, succeeded by thundering crashes in quick succession. Then came a violent rush of wind, followed by a volley of what seemed to be missiles, in the shape of stones, sand, and other loose materials hurled down upon the roof of the outside buildings with the noise of a hurricane.

The sudden alarm almost deprived me of my self-possession, and E—— could scarcely repress his indignation, so firmly did the conviction rest in his mind that human agency was at work. His muttered imprecations were not a few, and I pitied the poor "devil," whoever he might be, who might at that moment have fallen under the lash of his vengeful feelings.

After this we heard no more, the fiend having apparently exhausted his displeasure. Daylight came at last, and with it my nerves recovered their wonted equilibrium.

Directly after the matutinal cup of coffee, E—— went out, traversed every part of the small belt of jungle adjacent, and came back thoroughly disappointed and nonplussed with the result of his investigations. Not a trace of a tree having been touched was perceptible, nor was there a vestige of any substance whatever on the roof of the buildings in the compound.

No satisfactory solution of the mysterious noises we heard has ever been offered, and we can arrive at no conclusion. It has been suggested that they may have been produced by an echo. The strip of jungle ascended the hill, on the other side of which was a deep valley. On the opposite side of this valley rose another range of hills, covered with a tract of heavy jungle. This was valuable, as the district did not abound in very extensive forest, and timber was in request. It is possible that the sound of felling in this jungle might be echoed by the opposite hill, but even then, other circumstances combined to stultify this supposition; the echo would be heard on the hill where the sounds were made, not on that which produced it. No felling was going on there at that time, and had any one attempted to fell and carry off timber by stealth, the act must have been detected. Throughout the entire jungle did E—— subsequently extend his investigations without discovering a sign of human being having been engaged in any such operation. And then, who would, who could, go into the depths of a Ceylon jungle at dead of night without even a streak of moonlight to direct their steps, for any purpose whatsoever? Most natives are timorous of even walking on the high-road in darkness. Lights would have been of little use, and moreover would have been likely to lead to the discovery of their whereabouts. But the main fact remained to overthrow all the possible explanations we could devise — no felling had taken place in any part of the jungle.

This fact goes far also to disprove any supposition which might be urged on the ground of volcanic agency, which would leave some traces of its action. Neither is Ceylon subject to earthquakes or disturbances resulting from this cause, though it is not altogether exempt from them, as, in the autumn of 1874, I myself experienced a shock one night which we found was attributable to a slight earthquake which was felt more or less in different parts of the island.

Time passed on. I was not so brave as formerly about being left alone at night, and that day week E—— had occasion to attend a medical committee meeting at Cooroovagalan, and could not return home till the following morning. I might have accompanied him had I felt equal to the ride, but my nerves were in so shaken a state that I could not sit my horse, and had to give up the attempt and remain at home. As night advanced, my fears redoubled. Dinner over, I kept the servants about the bungalow as long as I could, but at length they had finished all I could find for them to do, and, not wishing to display any feelings of nervousness, I was obliged to dismiss them. I could, however, hear them in conversation outside over their rice, and summoned up

courage to retire for the night. Just before "turning in" an impulse led me to push aside the curtain over the doorway, and gaze upon the solitude around. The tall pillars and bare scaffolding, half-built walls and dark corners looked weird and desolate enough; and with a feeling of insecurity I dropped the curtain and extinguished my lamp. The convivial domestics outside had by this time ceased their chattering; all was still, when upon my startled ears fell the unwelcome but familiar sound of a heavy blow — an axe falling upon a tree! Horrified and unnerved, and dreading that the events of the previous week were about to be re-enacted, to what extent I could form no limit or conception, I hastily sought my pillow, bathed in a cold perspiration. Whether imagination or not this time I cannot determine, but if it was the pezazi again, bent upon terrifying us poor human beings, he desisted for that night, and relinquished his intention; for no more of the dreaded sounds did I hear; nor have I, from that day to this, ever been troubled with anything intangible to cause alarm or raise suspicions of a superstitious nature in my mind.

As might have been expected, after this occurrence all sorts of reports and vague stories were brought to our ears, such as that of a mason who, sleeping in an open shed in company with several other workmen, deposed to having actually seen the pezazi in *propriâ personâ*, and went so far as to give a vivid description of his chain, horns, and cloven foot in regular order!

Another man, a Jaffna Tamil, had occasion to sleep in a small store standing alone on the patina some few hundred yards from any other dwelling, and he calmly asserted with great seriousness that nightly did the Evil One pace the narrow verandah in front of his room, clanking his chain, and from time to time knocking for admittance. Samuel, who professed Christianity, stated that on the arrival of this unwelcome visitant from the unknown world, he read aloud his Testament by the light of his solitary lamp, and after repeated unsuccessful demands to enter, the uninvited guest was forced to take his departure, unable to endure the reading of Holy Writ.

All these stories we took for what they were worth; and gradually the natives became less importunate, and, as time went on, the rumors died a natural death.

But the fact remains, and will be forever impressed upon my memory, that the felling of the jungle at dead of night was no conjured-up fancy of a disordered imagination; though to what cause the sounds were attributable must, I fear, remain an inexplicable mystery, or be put down, as by the natives, to the evil machinations of a veritable pezazi.

A. EDWARDS.

From The Gentleman's Magazine.

JAMES RUSSELL LOWELL,

POET AND ESSAYIST.

PART II. — ESSAYIST.

MR. LOWELL says somewhere that the art of writing consists largely in knowing what to leave in the ink-pot. We may add that the art of publishing consists largely in knowing what to leave in the waste-paper basket. As an experienced editor, that is a discovery our author must have made long ago — but he has been too severe with himself. How many volumes of Lowell's prose works, if not in the waste-basket, are almost as effectually buried in magazine and newspaper columns? How many ink-pots between 1838 and 1880 have been absorbed by the blotting-paper of oblivion? A brief review of Mr. Lowell's working life will give the reader some notion of what the world has *not* got, and will serve to call attention to the condensed wealth contained in such unpretentious little volumes as "Among my Books," and "My Study Windows."

The "Lowles" from Yardley, Worcestershire, left Bristol for America about two hundred and forty years ago. There was evidently "stuff" in the family, as the town of "Lowell," a shire town of Middlesex, Massachusetts, is named after them. Charles Lowell, a respected Unitarian minister at Boston, was the father of the present poet, and determining that his son James Russell should have a liberal education, he sent him to Harvard University, where he entered at fifteen, became "class poet," graduated at nineteen, and on leaving college was recommended to study law. Whether Mr. Lowell's faculty for promoting litigation was imperfect or insufficiently cultivated is of little consequence to posterity; had he been a successful lawyer, he might have become a professional politician — the world would then have probably lost a poet and a statesman. About a year seems to have satisfied him that human

nature, from a legal point of view, was unproductive — perhaps dull. At all events, in 1841 he published a collection of poems called "A Year's Life." As they have never been reprinted, and we have not seen the original volumes, they may have been poetical digests of interesting cases. Some, however, have been republished; but we fail to find in the exquisite plaint of "Threnodia," "Irene," "My Love," "To Perdita, singing," or "The Moon," the least allusion to the "Prisoner at the Bar," "Costs," or even a "Fee Simple." The mature taste which cancels early work is not always to be relied on. Why Mr. Tennyson should have only retained one exquisite line in the whole of his prize poem "Timbuctoo" — a poem full of mature and sustained beauty — is to us as great a mystery as why Mr. Ruskin seems anxious to bury forever all his more important writings — which the world, however, will not willingly let die.

However, "to fresh woods and pastures new," in company with Mr. Robert Carter, did Mr. Lowell betake himself in 1843, and the *Pioneer*, "a literary and critical magazine," supported by Edgar Poe, Hawthorne, Parson, Storey, and others, was pioneered through three monthly numbers, when the publisher failed, and the venture was wrecked. Every one must buy his experience, and the interests of authors and publishers get a little mixed sometimes — especially those of authors — still, the great matter is to find one's "sea-legs" on the voyage of literary life.

In 1844 the verses including "A Legend of Brittany," "Prometheus," "Rhœcus," and some sonnets, showed at least that the poet and philanthropist was beginning to stand firm upon that quarter-deck on which the great anti-slavery battle was to be fought and won.

In 1845 a prose volume of conversations appeared, on some old poets, Chaucer, Chapman, Ford, etc., — subsequently, we suppose, incorporated in "My Study Windows," — and various hints, paragraphs, and disquisitions on politics and slavery prepare the way for some patriotic bursts of feeling, the indignation and the eloquent wrath of "The Present Crisis" (1848), "Anti-Texas," and "On the Capture of Certain Fugitive Slaves near Washington." These were shortly followed in that most momentous year '48, when the States were seething with revolution and Europe was in a blaze with Louis Napoleon's exploits, by "The Vision of Sir Launfal," and the famous "Biglow Papers," on which we have already so fully dwelt.* "A Fable for Critics" also appeared in the year '48.

In 1851 Mr. Lowell visited England, France, and Switzerland, and lived for some time in Italy. Such essays as "Dante" show how deeply he imbibed the spirit of Italy's greatest poet, and how closely he studied the schools of Italian painting and the relics of the Roman or Greco-Roman sculpture. Of the Greek sculpture there is little enough in Italy; only a few marble replicas of a few fine statues — the originals of all the finest Greek statues were in ivory or bronze. He joins in the abuse of Michael Angelo at present fashionable, and the reader may be referred to the section on "Italy," printed in the "Fireside Travels," for a variety of *impressions de voyage*, probably unlike what was printed before them, but very similar to what has appeared since. We miss the "flying grace" of Howells's "Venetian Life," but this Mr. Lowell would call "cheapening" one thing by another; and then, indeed, the impress left by Italy upon his mind and studies is far more important than are any of the pleasant, chatty notes made guide-book in hand. One thing is certain, that Mr. Lowell avoided travelling as other Americans are said to travel — seeing everything and looking at nothing, or, worse still, making notes, as they rush from place to place on the "Continong," of what they neither have seen nor looked at. I remember myself meeting two such enterprising travellers when I was last in Rome. They were standing opposite the "Apollo Belvidere" in the Vatican. One held guide-book with pencil, and read; the other mastered as rapidly as he could the labels on each pedestal. "Wal, what's the next?" says the friend with the guide-book. "That," says his friend, stooping down to examine the label — "that's the 'Pollo Belvidere." "Chalk 'im off," says his friend with the pencil, and both passed on without even raising their eyes to the sun-god!

But to be at leisure, to master well, to think and write maturely, is an old-world feature retained by Mr. Lowell. It is one of his main charms; like good wine, it will keep — ay, and bear exportation to boot.

In December 1852 he returned to America, and in 1854 and 1855 lectured on the British poets. The substance of

* Living Age, No. 1899.

these lectures probably reappeared in "Among my Books."

In January 1855, on the resignation of Mr. Longfellow, Mr. Lowell, by that time famous and influential as the poet of the "Biglows," accepted the chair of modern languages and belles-lettres in the Harvard College.

With that passion for thoroughness which he had so humorously and forcibly expressed in the "Biglows," Mr. Lowell revisited Europe to qualify himself especially in the French and German languages and literatures for his new post.

> Folks thet worked thorough was the ones thet thriv,
> But bad work follers ye ez long's ye live;
> You can't git red on't — jest ez sure ez sin,
> It's ollers askin' to be done agin.

To this period at Dresden, 1856, we doubtless owe those exhaustive studies, the fruits of which come out in the excellent essays on "Lessing" and "Rousseau" — papers which impress the reader, without apparent effort or design, with the feeling (most reassuring) that the writer knows so much more than he cares to say.

In 1857 to 1862 many essays, not since republished, appeared in the *Atlantic Monthly*, of which Mr. Lowell became editor; and in 1863 to 1872 he edited, in conjunction with Charles E. Norton, the *North American Review* — a kind of American *Revue des Deux Mondes* in literary importance.

In 1864 appeared the pleasant "Fireside Travels" containing his gossip about "Cambridge U.S., thirty years ago;" "The Moosehead Journal," full of characteristic incidents and glimpses of out-of-the-way lonely scenery, and American travel in pleasant by-ways; experiences at sea, together with appearances of whales and jellyfish; a pensive paragraph on the sea-serpent, and a few words of sympathy for that rare monster's admirers; some notes on the Mediterranean, not unlike other people's notes on the Mediterranean, and "In Italy" — generally — very generally.

In 1867 we have the "Second Series of Biglow" and "Melibœus Hipponax;" in 1868, "Under the Willows, and other Poems;" in 1869, "The Cathedral," an extensive poem redolent of foreign travel, but interspersed with those delightful meditations and serious reflections without which Mr. Lowell's earnest nature is incapable of long exhaling itself in either prose or poetry. In 1870 the pith of many essays and magazine articles is extracted and issued in his three chief prose volumes, "My Study Windows," and two volumes "Among my Books." In 1872 Mr. Lowell is again in Europe, and in 1874 Cambridge University — not U.S.A. — confers its LL.D. in the senate-house upon one who had certainly by this time, more by the quality than by the quantity of his books, won for himself a foremost place in English literature, as well as a special throne in America, where he may well be called the prize poet of the vernacular.

From the English point of view all this may seem an odd training for a politician. Indeed, our English House of Commons has always been a little shy of literary men (although it happens to have a good supply of them just now — 1880). Lord Macaulay was a fair Parliamentary success as far as he went, but his extreme distaste for office perhaps betrayed a certain sense of unfitness to excel in practical politics; Bulwer Lytton was a showy *succès d'estime* as a debater; and John Stuart Mill, although unable to keep his seat, left his hall-mark on every question that he opened his lips upon in the house. Lord Beaconsfield is altogether an exceptional phenomenon; but our last attempt at a poet-statesman, on a truly imperial scale abroad, cannot be exactly described as a success, in spite of Mr. Prinsep's gorgeous and consummate efforts on canvas.

But they manage all these things differently in America, and, indeed, they make politicians out of all sorts of stuff, for home use — but for foreign service a literary career seems to be no unnatural or unusual prelude. Mr. Howells was consul at Venice, so was G. P. R. James; Mr. Bret Harte is consul at Glasgow. Mr. Lowell, who had never made a political speech or sought his country's suffrage at home, or held any State appointment whatever, was offered the post of ambassador to Russia in 1874, which he declined; but so determined were the Americans to be represented by him abroad, that Madrid, which he accepted, was offered him in 1877, and London in 1880; nor could any better appointment have been made.

Since Mr. Lowell's arrival he has had no diplomatic work of any importance to transact, and the devout wish cherished on either side of the Atlantic must be that he may have no opportunity whatever afforded him of distinguishing himself as a political agent, except in the quiet and genial direction of that *entente cordiale* which he is so happily fitted to promote.

The style of Mr. Lowell is emphatically his own, and yet no man reports so habitually — half sympathetically, half whimsically — the ring of other writers. "Homer Wilbur" is especially redolent or resonant of the old Elizabethan masters. We hear the grave Verulam Lord Bacon, or the judicious Hooker, in — "Our true country is that ideal realm which we represent to ourselves under the names of religion, duty, and the like. Our terrestrial organizations are but far-off approaches to so fair a model, and all those are verily traitors who resist not any attempt to divert them from their original intendment." Sometimes we get an odd flavor of Swift, bright humor being substituted for malignant satire; at others, the flowing and tender style of Jeremy Taylor comes back to us as we read; and this pretty close to a quaint essay on journalism is certainly the oddest mixture of Emerson and Sterne: "Through my newspaper, here, do not families take pains to send me, an entire stranger, news of a death among them? Are not here two who would have me know of their marriage? And, strangest of all, is not this singular person anxious to have me informed that he has received a fresh supply of Dimitry Bruisgins? But to none of us does the present continue miraculous (even if for a moment discerned as such). We glance carelessly at the sunrise, and get used to Orion and the Pleiades. The wonder wears off, and to-morrow this sheet, in which a vision was let down to me from heaven, shall be the wrappage to a bar of soap, or the platter for a beggar's broken victuals."

But here is a bit of the genuine, unadulterated Lowell, in one of his rare bursts of terrible scorn and irony. It is indeed a tremendous indictment on the war material of an "unthrifty mother State," this picture of a war recruit. "An own child of the Almighty God! I remember him as he was brought to be christened — a ruddy, rugged babe; and now there he wallows, reeking, seething — the dead corpse, not of a man, but of a soul — a putrefying lump, horrible for the life that is in it. Comes the wind of heaven, that good Samaritan, and parts the hair upon his forehead, nor is too nice to kiss those parched, cracked lips; the morning opens upon him her eyes full of pitying sunshine, the sky yearns down to him, — and there he lies fermenting. O sleep! let me not profane thy holy name by calling that stertorous unconsciousness a slumber! By-and-by comes along the State, God's vicar. Does she say, 'My poor, forlorn foster-child! Behold here a force which I will make dig and plant and build for me'? Not so; but, 'Here is a recruit ready-made to my hand, a piece of destroying energy lying unprofitably idle.' So she claps an ugly gray suit on him, puts a musket in his grasp, and sends him off, with gubernatorial and other godspeeds, to do duty as a destroyer."

Mr. Lowell is hard upon fine writers; and, indeed, his own style, although rising to an occasion, never approaches the chronic elevation of the penny dreadful; he prefers "was hanged" to "was launched into eternity;" he would have the poor taste to write "when the halter was put round his neck," rather than "when the fatal noose was adjusted about the neck of the unfortunate victim of his own unbridled passions;" he will not even call a "great fire" a "disastrous conflagration," or speak of "a frightened horse" as an "infuriated animal." Instead of rising at a public dinner with "I shall, with your permission, beg leave to offer some brief observations," Mr. Lowell might be so negligent of oratory as to begin, "I shall say a few words." But he never talks the current nonsense about good Saxon English, and he boldly maintains that our language "has gained immensely by the infusion (of Latinisms), in richness of synonym, and in power of expressing nice shades of thought and feeling." Perhaps there may be a question between the English "again rising" and the Latin "resurrection;" but "conscience" is superior to "in-wit," "remorse" to "again-bite;" and what homebred Englishman could ape the high Roman fashion of such togated words as "the multitudinous sea incarnadine"? Again, "mariner" is felt to be poetically better than "sailor" for emotional purposes, and most people would prefer to say, "It was an ancient mariner" rather than "It was an elderly seaman."

Such shrewd perceptions abound in these essays: and now, before proceeding, I might, with that kind of careless facility so much in vogue with the critics, point out a few slips or a little slovenliness here and there, as when Mr. Lowell opines that "Chastelard" was ever popular in England, or that Mr. Swinburne really owes very much to Robert Browning, and quite forgets to mention D. G. Rossetti, who was his real master. We might remark upon his curious notion

that Clough was, after all, the great poet of the age, and wonder why, in dealing with Pope's artificiality, he should have failed to allude to that one most perfect and extreme case, "The Dying Christian to his Soul;" or, whilst condemning his want of real pathos, should have forgotten such real bursts of passion as occur in "Eloisa to Abelard." As to Mr. Lowell's slovenly style, nothing can be more slipshod than the following on Dryden: "He is always imitating — no, that is not the word," etc.; or "The always hasty Dryden, as I think I have said before," etc. Every critical notice is expected to contain a few specimens of such flippant signs of the critic's superior acumen, and I hope I shall get credit for them; but the real object of such an article as this is "to give the quality of a man's mind, and the amount of his literary performance." To such business we now continue to apply ourselves.

In Mr. Lowell's mind, the conservative and radical elements are mixed in truly statesmanlike proportions. Capable of that concentrated passion which did much towards sweeping slavery from his own land, and with a certain bitterness and scepticism towards established forms of religion, no one can fail to be reassured and won by the essential sobriety of his qualifying utterances. Do you think him a radical? then note how he dwells on that "power of the past over the minds and conduct of men, which alone insures the continuity of national growth, and is the great safeguard of power and progress;" or again, "The older government is the better, and suits; new ones hunt folks' corns out like new boots." His impatience with the sects is with their forms only, and their attempts to imprison the eagle of faith in the iron cage of dogma. He quotes with approval Selden, who says, "It is a vain thing to talk of an heretic — a man, for his heart, cannot think any otherwise than he does think;" and we can hardly be grateful enough to him for reminding the children of this generation that "so soon as an early conviction has cooled into a phrase, its work is over, and the best that can be done with it is to bury it."

But there is one clear note running through the whole of his utterances which makes them fresh as with the sea air. It is the note of moral supremacy: "that moral supremacy is the only one that leaves monuments and not ruins behind it;" that "great motors of the race are moral, not intellectual, and their force lies ready to the use of the poorest and the weakest of us all;" that "no man without intense faith in something can ever be in earnest;" that in *act* a right ambition is to be "a man amongst men, not a humbug amongst humbugs," and in *word* "to give the true coin of speech, never the highly ornamental promise to pay — token of insolvency."

It is not safe to divide Mr. Lowell's essays into the heavy and the light, for there come to him flashes of delicate humor in his gravest moods, and he will anon stop and moralize, like Thackeray, in front of a clown. Safer is it to separate the volumes roughly into contemporary and non-contemporary. "Among my Books," two volumes, are entirely non-contemporary, and full of grave and weighty matter concerning "New England Two Centuries Ago," Dryden, Shakespeare, Lessing, Rousseau, Dante, Spenser, Wordsworth, Milton, and Keats; whilst "My Study Windows," with the exception of "Pope," "Chaucer," and "Notes on the Library of Old Authors," deals entirely with contemporary matters. Such are "My Garden Acquaintance," "A Good Word for Winter," "On a Certain Condescension in Foreigners," "A Great Public Character," whose interest for us begins and ends with this sketch of him,— a remark which applies equally, if not more, to "The Life and Letters of James Gates Percival;" and finally we have an extremely interesting and entertaining section of critical and biographical studies on Carlyle, Abraham Lincoln, Emerson, Thoreau; and to this list we must add a notice of Edgar Poe's life and works, written at his own request in 1845, and attached to an edition of Poe's works in four volumes.

No true American can touch upon the early settlement of the Pilgrim Fathers upon the barren coast of Massachusetts, and the momentous national life which grew out of it, without an irrepressible glow of feeling. It is like the sentiments of the Swiss about William Tell. Mr. Lowell's "New England Two Centuries Ago" is a prose idyll full of suppressed poetical fervor. He calls the history "dry and unpicturesque." "There is no rustle of silks, no waving of plumes, no chink of golden spurs," but we soon feel that "the homespun fates of Cephas and Prudence" have the living interest of life in the catacombs about them, and are "intrinsically poetic and noble." "The noise of the axe, hammer, and saw" rings through it all, and is the physical image of

that mighty impulse which drove the Puritan to make "the law of man a living counterpart of the law of God."

This coming out into the wilderness for the sake of an idea is full of a moral chivalry irresistibly attractive to an age birdlimed with the "expedient," and suffocated with the "practical;" it is just the indescribable magnet which draws the imagination of sceptical France after a Victor Hugo, or the *dolce far niente* of Italy after a Garibaldi. Sublime singleness of purpose — divine simplicity of heart — the little child is again set in the midst of us by the dear Lord, and presently he overcomes the mailed Goliath with a sling and a stone! "Dry and unpoetic," repeats Lowell, with his great heart all on fire; "everything is near, authentic, petty," "no mist of distance to soften outlines, no image of tradition," only this — that Jehovah, who had become "I was," became again "I am" to the Puritans. Yet, were they not fanatics? — enthusiasts they were; but work and "business" saved the balance of character: their very narrowness and despotism were sensible and judicious. "They knew that liberty in the hands of feebleminded men, when no thorough mental training has developed the understanding and given the judgment its needful means of comparison and correction," meant nothing more than "the supremacy of their particular form of imbecility a Bedlam chaos of monomaniacs and bores." The New Englander was without humor, but that quality has since been largely developed in his descendants, who fail not to see that Puritanism had an intensely humorous side. Mr. Lowell, in the midst of his close sobriety of treatment, has a winning perception of those lighter shades of the comic which crop up in such a "Miles Gloriosus" as Captain Underhill, who took up certain heretical opinions "with all the ardor of personal interest" "on the efficiency of grace without reference to works." His chief accuser, although he denied the charge of heresy on that score, was "a sober woman whom he had seduced in the ship and drawn to his opinion, but who was afterwards better informed." He told her that he had continued "in a legal way and under a spirit of bondage," and could get no "assurance," for about five years, till at length, "as he was taking a pipe of the good creature tobacco, the Spirit fell upon his heart, an absolute promise of free grace, which he had never doubted, whatsoever sin he should fall into." "A good preparative," adds the chronicler, "for such motions as he familiarly used to make to some of that sex. The next day he was called again and banished, etc." His subsequent grave complaints — claims for promotion in the colony, and profound consciousness of personal merit — are very diverting, especially at the end, where he throws in a neat touch of piety: "and if the honored court shall vouchsafe to make some addition, that which hath not been deserved by the same power of God may be in due season."

Here and there a fugitive trace of that simple old life of the early colonists still survives, and with it we must take farewell of them. The picture is caught and crayoned with the quick and tender touch of a poet's pencil.

"Passing through Massachusetts, perhaps at a distance from any house, it may be in the midst of a piece of wood and where four roads meet, one may sometimes even yet see a small, square, one-story building, whose use would not long be doubtful. It is summer, and the flickering shadows of forest leaves dapple the roof of the little porch, whose door stands wide, and shows, hanging on either hand, rows of straw hats and bonnets that look as if they had done good service. As you pass the open window, you hear whole platoons of high-pitched voices discharging words of two or three syllables, with wonderful precision and unanimity. . . . Now, this little building and others like it were an original kind of fortification, invented by the founders of New England. . . . They are the Martello towers that protect our coast. . . . The great discovery of the Puritan fathers was that knowledge was not an alms or pittance . . . but a sacred debt which the commonwealth owed to every one of her children."

Passing from the New England of America to the old England of Shakespeare, we have to note Shakespeare's good fortune in living at a time when old England was passing into the new England of modern Europe; and the reflection, although not new, is well put by Mr. Lowell when he notes that, had Shakespeare been born fifty years earlier, he would have been damped by a book language not flexible, not popular, not rich, not subdued by practice to definite accentuation; or fifty years later he would have missed the Normanly refined and Saxonly sagacious England of Elizabeth, and found an England absorbed and angry with the solution of political and religious

problems. Mr. Lowell, like every other thoughtful writer, must have his say on the distinction between genius and originality — and he says it pithily and well — "Talent sticks fast to the earth. Genius claims kindred with the very workings of nature, so that a sunset shall seem like a quotation from Dante or Milton; and if Shakespeare be read in the very presence of the sea itself, his verse shall but seem nobler for the sublime criticism of ocean." And how prettily said is this: "What is the reason that all children are geniuses (though they contrive so soon to outgrow that dangerous quality), except that they never cross-examine themselves on the subject? The moment that process begins, their speech loses its gift of unexpectedness, and they become as tediously impertinent as the rest of us." And again, "Genius is a simple thing of itself, however much of a marvel it may be to other men."

Of the endless twaddle about originality our author makes as short work as does Mr. Emerson, and very much in that prophet's own spirit: "Originality is the power of digesting and assimilating thoughts, so that they become parts of our own life." Or elsewhere: "Originality consists quite as much in the power of using to purpose what it finds ready to hand as in that of producing what is absolutely new." Compare this with Emerson, who points out that Shakespeare was little solicitous whence his thoughts were derived, and adds, "Chaucer was a huge borrower," but both "steal by apology — that which they take has no worth where they find it, and the greatest where they leave it. . . . It has come to be practically a sort of rule in literature that a man having once shown himself capable of original writing is entitled thenceforth to steal from the writings of others at discretion. Thought is the property of him who can entertain it, and of him who can adequately place it. A certain awkwardness marks the use of borrowed thoughts, but as soon as we have learned what to do with them they become our own."

"Shakespeare once more!" Mr. Lowell calls his essay. Does he say anything new? The reader who has read all that has been written about Shakespeare is the best judge of that. I have no such pretensions; but the summing-up on various counts is very good and clear, especially the remarks on Heminge and Condell, "the two obscure actors to whom we owe the preservation of several of his plays and the famous Folio edition of 1623." Mr. Lowell is of opinion that bad is the best extant version as to accuracy; that the rugged, incomplete, obscure, and irregular passages are all imperfect, and that Shakespeare never wrote bad metre, rugged rhyme, nor loose and obscure English. This may be true; at all events, no one can say that it is not so. To me it appears like saying that Handel never wrote indifferent music, or that Raffaelle is never out of drawing. It always seems to me to be putting an ideal strain upon human nature — this steady elimination of the "pot-boiling" element. It may not always have been so prominent as in the case of Handel, or poor Morland, or Fielding, or the divine Mozart; but one who, like Shakespeare, must have produced with great speed at high pressure, and who certainly was not above writing down to his public, may have occasionally had such a moderate opinion of his audience, and such an indisposition to do the *plus quam satis*, as to leave a passage rough on occasion without much injury to himself or to posterity.

But here am I emptying my little basket on the mighty rubbish-heap of Shakespearian speculation! Let me rather note Mr. Lowell's fine appreciation of the way in which at first every one feels himself on a level with this great impersonal personality — how Alphonso of Castile fancies he could advise him — how another could tell him there was never a seaport in Bohemia. "Scarce one (for a century or more after his death) but could speak with condescending approval of that prodigious intelligence, so utterly without compare that our baffled language must coin an adjective — Shakespearian — to qualify it." And then, as time goes on, every one seems to get afraid of him in turn. Voltaire plays the gentleman usher — but when he perceives that his countrymen are really seized, turns round upon the placid immortal and rails at him with his cowardly "*Sauvage ivre, sans la moindre étincelle de bon goût!*" Even Goethe, who tries to write like him in "Götz" and fails, comes to the conclusion that Shakespeare is no dramatist; and Chateaubriand thinks that he has corrupted art. "He invented nothing," says Lowell, "but seems rather to rediscover the world about him."

Mr. Lowell's view of "Hamlet" will be specially interesting to Mr. Irving and his admirers, the more so because Mr. Irving seems to have come to the same conclusion. "Is Hamlet mad?" "High medical authority has pronounced, as

usual, on both sides of the question;" but no — Hamlet is not mad intellectually, he is a psychologist and metaphysician, a close observer both of others and of himself, "letting fall his little drops of acid irony on all who come near him, to make them show what they are made of." Hamlet deprived of reason is a subject for Bedlam — not the stage. If Hamlet is irresponsible, the play is chaos; besides, the feigned madness of Hamlet is one of the few points in which it has kept close to the old story. Morally, Hamlet drifts through the whole tragedy, never keeping on one tack; feigned madness gives to the indecision of his character the relief of seeming to do something, in order as long as possible to escape the dreaded necessity of doing anything at all. He discourses of suicide, but he does not kill himself — he talks of daggers, uses none — goes to England to get farther from present duty — he is irresolute from overpower of thought. He is an ingrained sceptic — doubts the soul, even after the ghost scene — doubts Horatio, doubts Ophelia — his character is somewhat feminine; but here we break off in despair of being able to give even a rough idea of Mr. Lowell's "Hamlet" — it is by far the finest piece of literary criticism in the book, and must be studied — at the Lyceum.

We here sum up with Shakespeare's moral: "Lear may teach us to draw the line more clearly between a wise generosity and loose-handed weakness of giving; Macbeth, how one sin involved another and forever another by a fatal parthenogenesis, and that the key which unlocks forbidden doors to our will or passion leaves a stain on the hand that may not be so dark as blood, but that will not out; Hamlet, that all the noblest gifts of mind slip through the grasp of an infirm purpose."

We turn the closing pages of this essay, unquoted, with reluctance, and pass to two essays which should be hung like pendant pictures "in every gentleman's library," — Lessing and Rousseau.

To begin an elaborate essay on Lessing with a disquisition on Burns is characteristic of an author who prefaces a brief notice of Poe with instances of some dozen poets who gave small early promise, as a contrast to Poe, who gave great early promise of ability. After about seven pages, we at last reach Lessing; the seven preceding pages show the extent and carefulness of Mr. Lowell's studies at Dresden; of the definite opinions he formed of Goethe, "limpidly perfect in his shorter poems — failing in coherence in his longer works;" of the grand duke, with his whole court in a sensational livery of blue, yellow, and leather breeches, but still capable of manly friendships with Goethe and Herder, whose only decoration was genius; of Heine, who could be daintily light even in German; of German love-making, which he explains to be "a judicious mixture of sensibility and sausages." However, Lessing is at last seized in the midst of a "setting" a little labored, with great firmness, and Mr. Lowell shows his essential gift, commenting with due appreciation on Herr Stahr's life of Lessing, while leaving on the literary easel a portrait of Lessing very unlike Herr Stahr's. It is in all those points where Lessing differs most from Rousseau, that Lessing charms Mr. Lowell; his character was more interesting than his works — he was lover of truth first and of literature afterwards; his struggles with poverty brought out his native manliness, his genuineness saved him from that fritter, haste, and vapidity which are the snare of book-makers; when he wants to earn a penny, he says, "I am unhappy, if it must be by writing." "To call down fire from heaven to keep the pot boiling" is no doubt the prophet's bitterest pill — but we are comforted when we think of the many noble works in art and literature which the world would never have had "but for the whips and scourges" of necessity.

In truth, few writers have not discovered that, although inspiration will not always come when called for, it will not often come if it be never called. Emerson's "laying siege to the oracle" is not a bad plan. "Nothing comes of being long in a place one likes," strikes the keynote of that "restless, mounting-upward" endeavor that makes Lessing so congenial a subject to our author.

To him, and not to Wieland, is traced that revolt from pseudo-classicism in poetry, prelude to the romanticism which ran wild in France in the next century. In 1767 Lessing was working at the "Laocoön," and in 1758 "Emilia Galotti" was begun; and in 1779 "Nathan the Wise," by which he was chiefly known outside Germany, was published. In 1781 he died. He may almost be said to have invented German style, and to have converted criticism from the science of party spirit to the service of simplicity and truth. The greatest critic of his age, he also was the first to see that "criticism,"

as Mr. Lowell says, "can at best teach writers without genius what is to be avoided or imitated. It cannot communicate life, and its effect, when reduced to rule, has commonly been to produce that correctness which is so praiseworthy — and so intolerable." That "so intolerable" is quite in M. Renan's best manner.

Mr. Lowell's candor and breadth are happily displayed in his remarks upon the sentimentalist Rousseau. He dislikes him. His half-conscious hypocrisy, his false sentiment, his self-indulgence and want of true moral fibre, are exactly what are most sickening to his reviewer. Yet will he not suffer him to be pommelled by Burke — nay, Irish Edmund is called "a snob;" but then Rousseau, with all his faults, was a good red republican, and Mr. Burke was a person of royalist proclivities. Neither is old Dr. Johnson allowed to jump upon the blithe author of "Emile;" he is promptly reminded of his own friend, "that wretchedest of lewd fellows, Richard Savage," — which is a little hard upon Johnson, as Richard Savage by no means so adequately represented the *noscitur a sociis* of Johnson's mature life, as did "Emile" or the "Confessions" the settled views and tastes of Jean-Jacques. Rousseau is used, perhaps, a little stringently, to "cheapen" Byron and Moore with. In comparison with such pet aversions of his, Mr. Lowell evidently considers Jean-Jacques a man of parts and principles. On the whole, the essay seems very fair to Jean-Jacques, and certainly contains some of Mr. Lowell's finest and most sensitive paragraphs. "There is nothing so true, so sincere, so downright and forthright as genius; it is always truer than the man himself is — greater than he."

And well is the trenchant line drawn between poetical and moral sentiment. "Every man feels instinctively that all the beautiful sentiments in the world weigh less than a single lovely action, and that, while tenderness of feeling and susceptibility to generous emotions are accidents of temperament, goodness is an achievement of the will and a quality of life." And, further, "There is no self-delusion more fatal than that which makes the conscience dreamy with the anodyne of lofty sentiments, while the life is grovelling and sensual." Yet, although Rousseau indulged this self-delusion, "I cannot help looking on him," writes his American critic, "as one capable beyond any in his generation of being divinely possessed. . . . The inmost core of his being was religious. . . . Less gifted, he had been less hardly judged. . . . He had the fortitude to follow his logic wherever it led him. . . . More than any other of the sentimentalists, except, possibly, Sterne, he had in him a staple of sincerity. Compared with Chateaubriand, he is honesty; compared with Lamartine, he is manliness itself." This last is just a little caustic on a man of whom Mr. Lowell wrote in 1848, —

> This side the Blessed Isles, no tree
> Grows green enough to make a wreath for thee;

and —

> Only the Future can reach up to lay
> The laurel on that lofty nature.

But times change; so do men and their opinions. Has not Mr. Emerson, in one of his Olympic moods, declared that "consistency is the bugbear of little minds"? and has not Mr. Lowell analogued the thought in — "The foolish and the dead alone never change their opinions"?

In the bright little essay called "On a Certain Condescension in Foreigners," Mr. Lowell expresses what are possibly the feelings of many Americans when he says, "It will take England a great while to get over her airs of patronage towards us, or even possibly to conceal them." The whole essay is intended, evidently, to be "overheard" on this side of the Atlantic, and is full of humor, wisdom, and wholesome truth, both for Americans and English — especially English. It contains this remarkable political utterance, which could never have been written except by an American, and perhaps by no American but Mr. Lowell: "Before the war we were to Europe but a huge mob of adventurers and shopkeepers."

We regret that we cannot dwell at greater length upon the lighter tones of sweet feeling that come streaming in from his "Garden Acquaintance," like the song of birds in spring — the bobolink and the oriole, the catbird and the song-sparrow, besides the many birds with which we are familiar in England, all are his friends, and he is their protector. How sweetly, like Selborne or gentle and genial Owen, does he write: "If they will not come near enough to me (as most of them will), I bring them down with an opera-glass — a much better weapon than a gun. I would not, if I could, convert them from their pretty pagan ways. The

only one I sometimes have savage doubts about is the red squirrel. I *think* he oölogizes. I *know* he eats cherries . . . and that he gnaws off the small end of pears to get at the seeds. He steals the corn from under the noses of my poultry. But what would you have? He will come down upon the limb of the tree I am lying under till he is within a yard of me. . . . Can I sign his death-warrant who has tolerated me about his grounds so long? Not I. Let them steal, and welcome. I am sure I should, had I had the same bringing up and the same temptation. As for the birds, I do not believe there is one of them but does more good than harm; and of how many featherless bipeds can this be said?" "Elia" himself never beat this in delicacy. "Winter" is conceived in a similar spirit. "Milton," a recreative review of Professor Masson's ponderous and irrelevant performance, reminds us a little of Macaulay's famous gibbeting of poor Montgomery, the poet; and indeed this baiting of a would-be humorist by Lowell, a real one, is very pleasant sport, and readable withal. "Dryden" and "Dante" are careful and elaborate studies of the age as well as of the men; but it is easy to see that Mr. Lowell's heart is as much in Dante as it is out of Dryden. "Keats" is an affectionate tribute. Mr. Lowell finds very little new to say about Wordsworth or Spenser, but his "Chaucer" is very careful and sympathetic. The essay on witchcraft is, oddly enough, the least interesting to us — perhaps because it is evidently the least congenial to the writer. The essay on Pope is as much under-friendly as Thackeray's "Pope" is over-friendly.

We regret to have no space for comment on the suggestive notice of "President Lincoln," full of personal insight and true American patriotism. But what we must call the attack on Carlyle and the panegyric on Emerson must serve to wind up our critical reflections for the present.

Carlyle and Emerson are most dissimilar: alike in this only, that each has performed the same office for different types of mind in the same century; both have taught men to think for themselves — Carlyle by his analysis of the external, Emerson by his analysis of the internal world. The one deals with matter in its effect on mind, the other with mind in its effect on matter. He who is taught by Emerson is seldom found at the feet of Carlyle; and it is strange but true that the readers of Carlyle have often an antipathy for Emerson's style, and most Emersonians detest Carlyle.

The key of Mr. Lowell's view of Carlyle is to be found, of course, in Carlyle's devotion, and Mr. Lowell's aversion, to the majesty of physical force. Carlyle is the despot, Mr. Lowell the republican, and from his hostile camp he examines the peculiarities of the *Sturm und Drang* school, and separates between the early and the late Carlyle with a firmness of touch and a plainness of speech which we in England are still afraid to use towards the venerable sage of Chelsea. "In the earlier part of his literary career Mr. Carlyle was the denouncer of sham, the preacher-up of sincerity, manliness, and of a living faith. He had intense convictions, and he made disciples. If not a profound thinker, he felt profoundly." He is represented as a man who hoped great things of humanity; then, later on, grew impatient when disappointed, and ended by hoping nothing of human nature except what could be got out of it by incessant driving and thrashing. "His latest theory of divine government seems to be the cudgel." He is the "volunteer laureate of the rod." The world for him "is created and directed by a divine Dr. Busby." It would be difficult for Mr. Carlyle's admirers to rebut this charge, but some of them might point to the obvious fact that the divine government, as we see it to be, *has* this severe, compulsory, and inexorable side to it. It *is* the government of the rod, though not of the rod only. Men are compelled and punished into the paths of rectitude and virtue by what we call the laws of nature. Our God is a divine despot, and the human despot, when good and wise, is a reflection of at least one side of a divine character. What Mr. Carlyle scorns and leaves out is the possibility of that free, slow development of the individual which is to make him a moral agent in the great scheme — the willing and joyful servitor of the divine despot. Because man will not do right, he must be compelled; that is pure Carlylese. But because to do right is in accordance with his own happiness as well as being the will of the heavenly despot, therefore his tender training as a free agent to do right freely, and not the "dumb-driven-cattle theory," should be the special and patient care of his earthly ruler — and this, in Mr. Lowell's opinion, of course, is a thing better done by a republican than by a monarchical or imperial form of government.

Mr. Lowell, though he weeps over the prophet of Chelsea, is generously alive to his literary greatness: "With all deductions, Carlyle remains the profoundest critic and the most dramatic imagination of modern times." And again: "As a purifier of the sources whence our intellectual inspiration is drawn, his influence has been second only to that of Wordsworth — if even to his." There is something much more living and personal about Mr. Lowell's account of Emerson: that great magician, who seems to dispense so naturally with the definite props of rule and doctrine so essential to most men, because he is so inseparably wedded to the eternal harmonies as never to feel any of them external to himself — that sweet and lofty prophet, who, with piercing yet indulgent eye, above all pain, yet pitying all distress, tells us what we know, and gives us the possession of ourselves — that equable temperament, that cloudless serenity whose calm is infectious, and whose deep peace puts everything into proportion; though personally Mr. Lowell prefers a temple (unlike those vast Mexican mysteries of architecture) with a door left for the god to come in, yet he knows that the root of the matter is in Emerson, who is never out of the presence of the "Oversoul," and whose one temple is the round world and the overarching heaven. To be conformable to eternal law is to be religious — to be natural on the plane of a high and pure nature — to be radiant with the original righteousness which draws the love and reverence of humankind and makes life adorable, instead of forever struggling with the nightmare of original sin. This, if anything, is to be prophetic. This, in spite of what Emerson calls "the dear old devil," is the witness to the world that "God has breathed into man's nostrils the breath of life, and man has become a living soul." "What an antiseptic is a pure life!" exclaims one who has watched and reverenced Emerson from boyhood. "At sixty-five, he had that privilege of soul which abolishes the calendar, and presents him to us always the unwonted contemporary of his own prime; . . . we who have known him so long, wonder at the tenacity with which he maintains himself in the outposts of youth." The brief essay before us is little more than a warm tribute to Mr. Emerson as a lecturer. We are told that he is still an unfailing "draw" in America, but we are told something else — that he is a consummate master of the lecture-art. Will our eminent men ever, as a rule, think it worth while to acquire this art? Not so long as £10 is considered an adequate fee for the best lecture, whilst £50 or £100 is willingly given for the best song. The old country is far behind the new in its estimation of high-class scientific and literary merit. Platform lecturing is an art like any other; and England will never get good lecturers till she pays for them. Pray, what sort of fiddling can you get for nothing? Lowell's essay on Emerson is — what I hope these two papers on Lowell will prove to be — a way of referring readers to the fountain-head, more than an analysis of the waters that flow from it. Personally, like so many others, to Emerson I owe my freedom and emancipation from those stocks of prejudice and those pillories of public opinion which make so many sit in the world of thought like frightened criminals unable or afraid to stir. When I was at college I exchanged four handsome volumes of Montaigne for one volume of Emerson's essays. I have never regretted my bargain; and when I open my well-worn copy, I still find the pantheon and the forest primeval alike instinct with the great Oversoul, and vocal with the music of God.

I think I can do no better than close this brief estimate of James Russell Lowell — his literary performance, together with such flashes of personality as leap forth spontaneously from its many-sided facets — with these words of his great friend and master, words fitly applicable to the few men who have measured their own time with temperate eyes, the few workers who have made their own country better and greater, "the few souls that have made our souls wiser:" "The world is his who can see through its pretensions. . . . The day is always his who works in it with serenity and great aims. The unstable estimates of men crowd to him whose mind is filled with a truth, as the heaped waves of the Atlantic follow the moon." H. R. HAWEIS.

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ELEMENTARY EDUCATION IN GERMANY.

THERE are in Berlin more than a hundred public elementary schools, of which I had permission to visit one of the largest. It consisted of two departments, one for boys and the other for girls. I may here observe that the third, or in-

fants' department, happily now common in England, has no place as a public institution in Berlin. The authorities believe that, until it is six years old, a child should be trained at home and not at school, and that its earliest teaching should proceed from its mother, and not from a schoolmistress who is a stranger to it. The two departments were very large, each consisting of about one thousand children. An Englishman is somewhat surprised to find that both the girls' school and the boys' are alike conducted by a master, and that even in the girls' school only half the teachers are female. In an English elementary school there is generally one large room in which the bulk of the scholars are collected, and several classes receive instruction at the same time — not without some confusion. It is the employment of pupil teachers which renders this necessary, for if children are to teach children both the teachers and the class need continual supervision. The practice in Berlin is to place each class in a separate class-room under a separate teacher. In the school which I visited there were twenty class-rooms, and the average number of scholars in each was fifty-four. Thus I found the plan of the building very simple. It consisted of four stories, on each of which there were five or six rooms arranged on either side of a central passage, and all well warmed, ventilated, and lighted. As to light, one side of each room was provided with three large French windows, and the three other sides were unlighted. The desks were always so arranged that the light fell from the left hand of the children, and so that neither teacher nor scholar sat facing the light. So much injury to the eyesight has been caused by children sitting opposite to the light that the German code, short and general as it is, makes special provision for the protection of the eyes of the scholars. Ventilation is effected by a valve near the ceiling, which opens into a common shaft. A jet of gas at the bottom of the shaft causes the heated air in it to ascend and thus suck out, so to say, the foul air from all the rooms in connection with it. For brevity's sake I will describe the attainments of the highest and lowest classes, merely remarking that the good results in the former are obtained by a very judicious gradation of the work in the intervening classes. The children in the lowest class were between six and seven years old, the age at which attendance at school becomes compulsory throughout Germany. Those which I saw had been only half a year in the school; yet they had learned in that time to read simple words of two syllables, both written and printed, to repeat some easy verses, to write their letters, large and small, and to add, subtract, and divide in figures between one and twenty. The Germans often teach reading and writing together, and have special lessons to instruct the younger children how to speak their mother tongue clearly, deliberately, and with proper accent: the same lessons are adapted to increase the children's vocabulary, and make it easier to learn to read. The children in the highest class were between the ages of thirteen and fourteen. This class begins work at seven o'clock in the morning, and continues, with a short interval, until twelve o'clock; in the afternoon it meets for two hours on three days in the week, while on the other three days their work is over at noon. The first hour is devoted to religious instruction. I heard a lesson on "prayer," in which, as in all other subjects, the answers were long and intelligent. The next lesson was one which would correspond to a reading lesson with us, but it is much more comprehensive. The scholars could read, not only with expression, but with taste as well; and besides this they had some acquaintance with German literature. For instance, in answer to the question, "Who knows a ballad of Schiller?" every hand was held up. The boy who repeated one was further able to say what a ballad is, who were the chief ballad-writers, the names of Schiller's most famous ballads, and even the different periods into which that poet's literary life may be divided. The class was also well up in the parsing and analysis of sentences. The instruction in geography and arithmetic does not greatly differ from that now usual in our own country. Geographical facts are of course taught in connection with maps, and not learned by heart from a book. In arithmetic more stress is perhaps laid on mental calculation than with us. Every new rule is first taught mentally, and then, as the figures grow too cumbrous for head reckoning, paper is resorted to. In geometry, on the other hand, the instruction is altogether beyond the sphere of any elementary school in this country, and one might look some way up a secondary school without being able to match it. I next heard a lesson in botany. The lesson was illustrated by a specimen of *Malva sylvestris*. This

plant was chosen as representative of the natural order Malvaceæ, which order receives special attention because of its industrial importance, the cotton-plant being included in it. The class knew or learned the following: the difference between monocotyledons and dicotyledons; the characteristic features of the natural order Malvaceæ; the chief flowers included in it, both foreign and native, and the popular names of the latter; their uses in industry; the parts of the plant, especially the floral envelopes, and the relations between the natural and the Linnæan classification. I heard also a lesson on mineralogy. The subject was "arsenic." The teacher had a box of minerals for illustration. He pointed out the classes into which minerals were divided, and the three forms in which arsenic is found in combination with other minerals. The boys came to the box and picked out specimens of each. There followed an account of the uses and abuses of the mineral. In the same way physics, chemistry, and physiology are taught, the object of all this kind of instruction being essentially practical — that is, to give the children a general knowledge of the most interesting facts related to these sciences, and not a special acquaintance with any one of them. There are three other subjects not universally attempted in England, but well taught in Berlin — (1) Singing taught from notes, except in the two lower classes; (2) Drawing; and (3) Gymnastics. A large covered gymnasium stood in one corner of the playground, in which exercises are prescribed for the girls as well as for the boys. The organization of the girls' department was exactly the same as that of the boys', and the course of instruction varied but very little. In arithmetic there was no abatement, and in mental calculation the girls seemed a little quicker than the boys. Instead of geometry, however, the girls were instructed in needlework. This subject is not taught in the lowest classes, and the girls are between eight and nine before they begin it; hence the results are not equal to the best schools in England. I observed that the art of "cutting out" was very scientifically taught by means of a blackboard ruled in squares, each one square centimetre. I was somewhat surprised to find that the important subject of domestic economy was entirely neglected, and that very little has been yet done to encourage thrift by the establishment of school savings-banks.

MOSAICS. — The first authentic account to be found of any mosaic work in ancient Rome is given us by Pliny, who says that Sylla caused some "stone-laid" work to be made; and from his and other sources of evidence we are justified in assuming the time of its introduction here to have been about eighty years B.C. This date corresponds with the destruction of Corinth, when precious objects of all kinds were carried to Rome, and naturally created a wish in the minds of wealthy Romans to possess mosaics as well as other luxurious embellishments. A very learned Italian writer has divided Roman mosaics into four classes, namely — tessellated and sectile, applied to pavements generally; fictile and vermiculated or pictorial, applied to walls and vaults. Of these the tessellated is probably the most ancient, and consisted of small cubes of marble, seldom averaging more than three-quarters of an inch square, worked by hand into such geometrical figures as, when combined, would best compose a larger figure equally geometrical, but of course more intricate. It is probable that the first colors used were black and white. The best samples of this tessellated work occur at Pompeii and at the baths of Caracalla; but very fine specimens have been found in this country. The sectile or sliced work was formed, some say, of the different slices of marble of which figures and ornaments were made; others hold that these slices were never employed to imitate figues or any actual subject, but produced their effect solely through the shape, color, and vein of the marbles which were contrasted. It is believed that no piece or fragment of ancient sectile work imitating a subject of any kind has yet been found; and if it had been so employed we must have had examples at Pompeii, where the student may find all varieties of mosaic pavement known to either Greek or Roman. The most noble specimen of sectile work now extant is the splendid pavement of the Pantheon at Rome, where the principal marbles are arranged, each of great superficial extent, in alternate round and square slabs. The building of the Pantheon was finished about thirty years before the Christian era. This kind of work required the employment of costly marbles, and no remains of it have been discovered in any other country than in Italy.

Pottery Gazette.